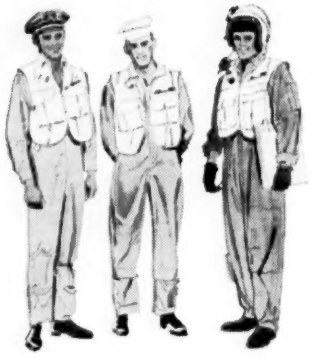
Marine Corps Gazette

AUG 1959

FORTY CENTS

U. S. NAVY ELECTRONIC RECONNAISSANCE

The men:



A Navy electronic reconnaissance crew—operating from a fast carrier task force. Pilot, navigator and gunner are supplemented by four technicians operating highly accurate electronic equipment.

The mission:

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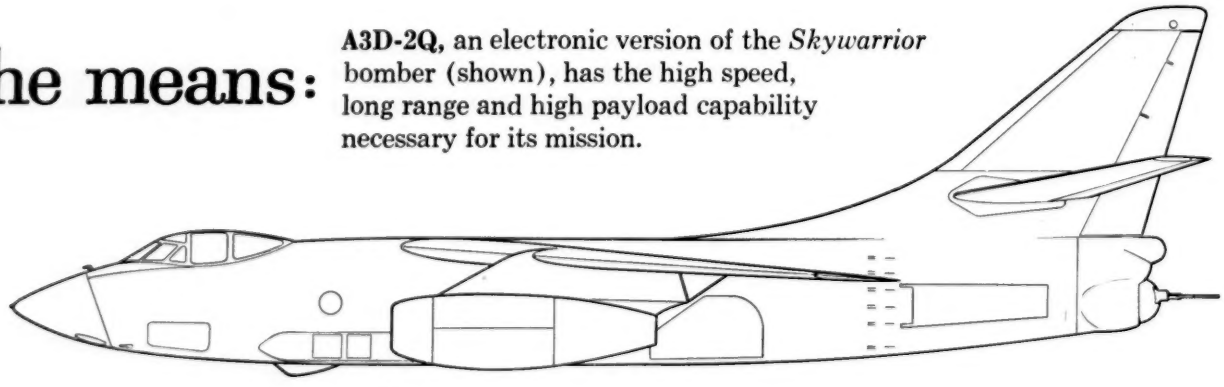
OFFICIAL U. S. NAVY RECONNAISSANCE PHOTO

The means:

A3D-2Q, an electronic version of the *Skywarrior* bomber (shown), has the high speed, long range and high payload capability necessary for its mission.



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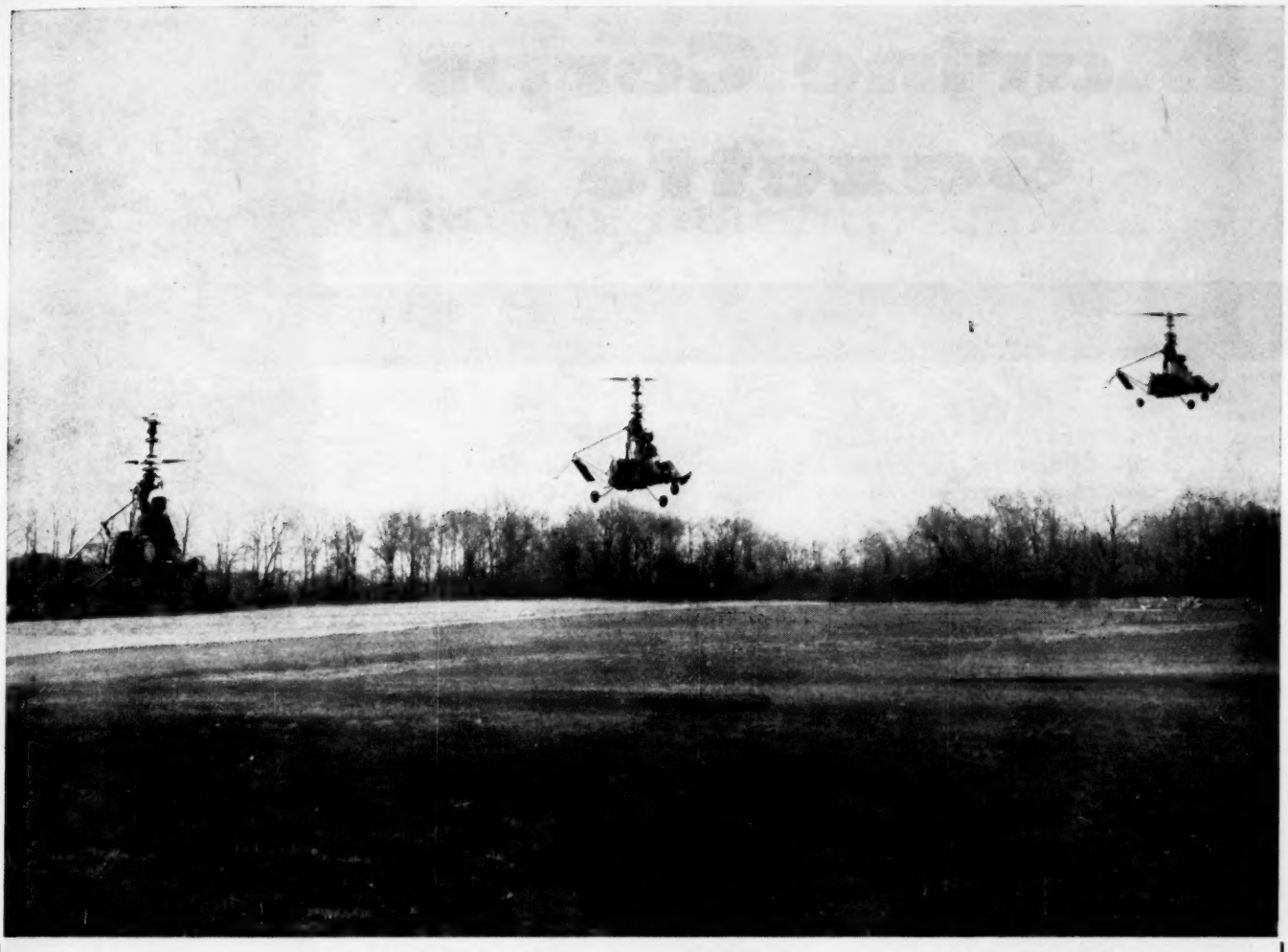

THE MARINES TAKE DELIVERY OF THE FIRST ROTORCYCLES

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A new chapter is being written in Marine Corps history. Now the combat Marine has a new tool—the GYRODYNE YRON-1 ROTORCYCLE. These first delivered vehicles are for evaluation of the many tactical uses of which they are capable:

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Marine Corps Gazette

AUGUST 1959
NUMBER 8
VOLUME 43

Published by the Marine Corps Association in order to provide a forum for the expression of matters which will advance knowledge, interest and esprit in the Marine Corps

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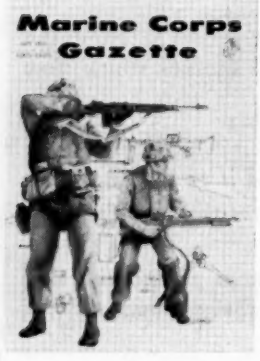

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THIS MONTH'S COVER . . . . . This month Marines are firing in the National Matches at Camp Perry, Ohio. The cover illustration, by *Leatherneck* artist ASSgt Bill Tipton, salutes the Marine combat marksmen, whose skill is the product of all marksmanship training and competition.

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"No man can improve an original invention..."

—William Blake

THERE are many scientists today who would argue this point with Blake.

At Bell Telephone Laboratories, for example, we have seen original inventions improved and re-improved countless times, the better to serve mankind.

But William Blake went on to say "... nor can an original invention exist without execution organized, delineated and articulated." Here Blake expressed ideas that apply with striking emphasis today. At Bell Laboratories organized effort is constantly aimed at fostering an environment in which inventions can exist and prosper, where they can be expressed either as ideas or in physical form, and where clear understanding of their principles can be achieved.

Indeed, Bell Laboratories scientists have made contributions to the art of communications which have twice earned Nobel prizes, and which have helped create the most efficient and versatile telephone system ever known. Bell Laboratories research and engineering serve the country, too ... in such projects as—among others—guidance systems for the Nike and Titan missiles, the DEW line, SAGE, the Alaska Military Network.

William Blake (1757-1827), a versatile genius, was famous for brilliant, sometimes prophetic, insights which he expressed with provocative beauty in drawing, painting, poetry and prose.

BELL TELEPHONE SYSTEM

Uncorking the Bottle

. . . Capt MacMichael's article, *Bottleneck in Close Air Support* (GAZETTE: May '59), has so many incorrect statements that comments are required to straighten out the author and to reorient any readers who may have been misled.

First: There is *plenty* of doubt that close air support is the most versatile and effective means of delivering fire support to the ground commander. *Comments:* 1) Proper coordination of supporting arms employs close air support only when the mission cannot be accomplished by other means. 2) Air is not organic to a Marine division whereas artillery is. 3) The present state of the art has not produced effective close air support during conditions of bad weather or poor visibility.

Second: "The rationale of this determination is that support craft is most effective when used in close support. . . .beliefs attributed to the Air Force which holds that close support of ground troops is not the most effective use for attack aircraft, and that other missions, particularly interdiction, get priority." *Comments:* 1) Air's most important missions are the gaining and maintaining of air superiority, and effective isolation of the battle area. 2) Present attack type aircraft are most effective in the accomplishment of those missions by destroying hostile aircraft on the ground (and their supporting facilities); and by effective armed reconnaissance, interdiction, and attack sorties beyond the bomb line. 3) Attack type aircraft orbiting or used on targets that can be effectively destroyed by other means merely reduce the number than can be used to better advantage to the supported ground forces.

Third: "Orbiting support aircraft." *Comments:* 1) Except for pre-planned coordinated air support, it is neither economical nor necessary to have attack aircraft orbiting for possible missions. 2) Loaded aircraft on a strip alert can be available within minutes, briefed while enroute.

Fourth: "The system is simple and for success depends only on maintenance of local air superiority, good weather and good communications among aircraft, DASC and TACP." *Comment:* The choice of the word *only* is most inappropriate. History shows that a major part of the national effort went into the gaining and maintaining of air superiority during the 1941-1945 period; good weather is still beyond our control; and the less said about good communications the better.

Fifth: "Jet attack planes such as the A4D are much inferior to the AD, for instance, in such characteristics as load carrying ability and endurance on station." *Comment:* 1) Let's *for instance* a more important characteristic such as ability to hit a target. Obviously the jet with no torque is the more stable delivery platform. Or let's compare ability to live in its environment coupled with the capability to return both trained pilot and expensive machine to fight another day. And let's compare total load carrying capacity of two attack squadrons—one prop, the other jet—each with an equal number of aircraft for a similar period of operations from fields equidistant from the front lines. Or compare ability to deliver tactical atomic weapons.

Sixth: "Central control has been necessary for two reasons. First. . ." *Comment:* Central control has been and will remain necessary in order to effectively exploit the tremendous capabilities of air (a scarce commodity) when and where required to influence the outcome of the battle.

Summary: Marine attack aircraft are more capable today than ever to execute their assigned tasks—including close air support—and with communication equipment now being produced can be effectively directed through centralized control. Marine attack pilots can deliver required ordnance more accurately than ever on any target they can identify. If any bottleneck exists in close air support today it is the lack of a rapid, fool-proof method of target identification/marking by the ground unit requesting the air support.

Finally: If you don't believe me ask an aviator.

LtCol W. C. Wells
H&HS, MWHG
3d MAW
MCAS, El Toro, Calif

Ed: Without asking, we received the opinion of several aviators on the article in question. Their views appear in OBSERVATION POST, page 62.

Three out-of-print issues of the GAZETTE are being sought by the historian at Marine Corps Supply Activity, Philadelphia. The issues are: December 1923, June 1925 and March 1930.

Any reader who has these issues is requested to write: J. J. Smith, Special Assistant to the Commanding General, Marine Corps Supply Activity, Philadelphia 46, Pa.

Strife Begins at Thirty

. . . Amen to ASSgt R. J. Fry and his sentiments voiced in *Who Let 'em In?* (MESSAGE CENTER: May '59) in reference to the new rank structure. I believe that I speak for countless others in the "troop handling fields" especially OF 03. We all rejoiced late in '57 when we learned that there was some consideration being given toward reestablishing the rank of gunnery sergeant, and also distinctive rank insignia for line troopers. At last, the line rates would be distinguished from technical and specialist fields and the infantrymen would hold their heads just a little

(Continued on page 6)

★

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(Continued from page 4)

higher and walk prouder once again. So we thought, but it never came to pass.

Now I am fully cognizant of the fact that the board who designed the present rank structure meant well, and that no one solution is 100 per cent satisfactory to all concerned. However it does seem that there could have been *some* distinctive method conceived to restore prestige to line rates. The question is: has the new rank structure restored this distinction which was lost in late '46? NO!

Another factor which I think did nothing toward bolstering the spirit was the T/O which authorized an ASSgt for the billet of platoon guide and an AGySgt as platoon sergeant. Maybe I am just thick-headed and dense, or maybe a die-hard in my old age (30), but it sure seems like a waste of talent and destruction of initiative to assign a good ASSgt as the platoon guide. If and when there is a distinction made in line rates it should apply not only for gunnery sergeants, but for all ranks above private first class.

AGySgt E. J. Thorn

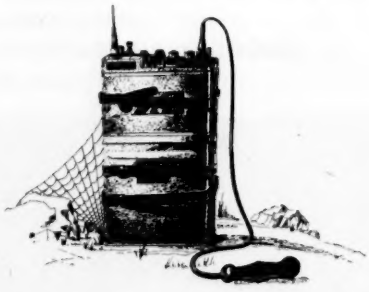
1stMarDiv
Camp Pendleton, Calif.

Forging a New Link

. . . In the March issue of the GAZETTE two very provocative articles appeared side by side. The first, Maj Blyth's comments on communications, *The Weak Link*, was happily followed by LtCol Greene's treatise, *Think*. The combination naturally caused me to *think* of *communications*, especially in the infantry battalion. As a result of these twin inspirations I wish to offer, for the consideration of all interested parties, a plan for increasing the communications capabilities of the infantry battalion.

Having served as a rifle company commander and a staff officer under both the "L" series and the present T/Os, I have often encountered the communications famine caused by the overcommitment of personnel. Unit separation places a premium on continuous, reliable communications, and increases the use of organic communications by all units. Usually, the reinforcement capability of the division communications battalion is employed in more critical missions than the support of a battalion, or is too far removed physically to be brought into action at the crucial time. In the last infantry battalion in which I served, a system was developed for augmenting the organic battalion communications personnel. The system was evolved by a vigorous staff, communications-oriented company commanders and a succession of bold and imaginative battalion commanders.

The situation that existed was common. The rifle companies



needed additional PRC-10 radios, and the personnel to man them. The radios were available but the operators were not. In each rifle company there were six or seven men below the rank of SSgt in the headquarters section. Because of the type of their duties these men were able to learn rapidly. They were also, generally, quite fluent in their use of the English language.

As a first step, the battalion communications officer established a school for these Marines, as well as for those who were performing duties as platoon radiomen. Personnel selected by their company commanders attended this course for about two weeks. Schooling covered the operation of field radio and wire equipment, and the handling and transmission of messages. It was understood that the schooling would be limited in scope and not highly technical.

When the men had completed their schooling, an NCO from the battalion communications platoon was assigned to each of the rifle companies. This NCO, usually a corporal, was well versed in the operation of field radio and wire equipment. He performed duties which might be described as those of a company communications chief. In garrison he performed maintenance and upkeep work on the organic communications equipment, conducted training for the new men, and maintained liaison with his opposite number within the battalion communications platoon. In the field he coordinated all company communications, supervised the work of the radio and wiremen, and advised the company commander on communications matters.

With the utilization of the headquarters personnel for wire and radio work, it was found that the quality of radio and telephone messages was kept at a high level of accuracy, and that the regular rotation of personnel carrying radios and other heavy gear could be maintained without fear of missing a transmission.

This plan was a local solution to a local problem. It could hardly be classified as either empire building or being wasteful of manpower. If that battalion had mounted out for combat, company commanders would not have worried about casualties to key communicators at crucial junctures.

This plan succeeded because of good planning and cooperation on all levels. It proved again the validity of the theory that the Marine is a versatile person indeed, if only given the chance to prove it. Perhaps ideas like this are what LtCol Greene was talking about in his article. I'm sure that if they are there is a wealth of information of this type that can best be disseminated in these columns. This, too, is communication and all of us should do more of it.

Capt. C. C. Hossli

MB, NAD
Hingham, Mass.

He Had It, Too

. . . In way of addendum to Capt Liddell Hart's *What is Military Genius?* (GAZETTE: June '59) I would like to nominate my "Great Captain" of WWII. Like most of those mentioned in the article, he too lost his last great battle; he also won many in his brilliant and splendid career.

I nominate that fine soldier and respected foe, Field Marshal Gerd von Rundstedt, who mastered the Ardennes—twice.

AGySgt Walter C. Tobin

2dMarDiv
Camp LeJeune, N. C.

(Continued on page 8)

The Marines are landing with

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(Continued from page 6)

Gas Deflated

. . . Capt Fitzgerald, in his article *Gas!* (GAZETTE: June '59), is correct in saying that our services have neglected educating their personnel in methods of protecting themselves from gas attack. There *is* something lacking in this neglect; however, he misinterprets the value of gas as a weapon. With our doctrine of vertical envelopment, rapid movement, and separation of forces, gas would play little part.

He states that we think of gas as a weapon of WWI, and gives examples of Ethiopia and China as later examples. Let's face it, gas *is* a weapon of WWI, well-suited to great masses of men tied down to intricate and immobile defenses covering great areas of terrain relatively free of natural obstacles; or great masses of ill-trained, poorly equipped troops such as the Ethiopian Army was. Even in WWI gas had its limitations. It was of little worth in the mountain warfare fought by Germans in Central Europe and on the Italian front, actions which more closely resemble present day tactics.

Gas warfare depends on too many variables — temperature, wind, terrain, its own persistencies, etc. It has no place today to any extent. Stop and think. Would gas have stopped German Panzers as they swept through Europe? Could it stop a Marine battalion today—one which would only have to be lifted by helicopter over the interdicted area?

2dLt R. H. Rowe

USNAAS, Whiting Field
Milton, Fla.

Launching a New Prophet

. . . I must take issue with some of the author's statements in the article *Old Prophets and New Wars* (GAZETTE: Mar '59). LtCol Walker stated that Clausewitz emphasized that war is an act of force, and that there is no limit to the application of force. My Clausewitz agrees war is an act of force, but in my book Clausewitz goes on to say that limitless application is possible only in theory . . . in international relationships the amount of force applied to the enemy is no greater than the value of the objective; (Korea, Suez, Algeria, Greece, Cyprus—the list is endless). In none of these actions was the political objective regarded as worth the risk of using atomic weapons. That is basically why nuclear weapons have not been used in warfare since Nagasaki.

In the Foreword to my Clausewitz the author clearly states that the only part of his work, *Vom Krieg*, he considers complete is the first chapter of the first book. He also states that he recognizes two distinct kinds of war i.e., the war of attrition and the war of annihilation (*ermachtungstrategie* and *niederwerfungstrategie*. Even Clausewitz' wife stated in the Prefaces that her husband had, during his lifetime, stated that his work was far from complete. The fact that the other books and chapters are incomplete is not reason enough for us to overlook them. If we accept the premise that the whole of Clausewitz is that war knows no limits in its application, then we are guilty of the same kind of error made by the German General Staff who believed that only *they* understood Clausewitz.

MacKinder and Mahan, with their Heartland and Rimland theories, should be considered together to best prove the validity of each in the present day.

Have not the Rimland nations renounced any designs on trying to take the Soviet Heartland by force? Does not the ruler of the Heartland feel cramped, restricted and threatened by the ring around him?—a ring that will continue to exist even if he were to overrun the entire World Island. At present the limits to the force the Soviets are willing to expend are enforced by the knowledge that unlimited force would be met by unlimited force.

That brings us to Douhet. And it is here that LtCol Walker and I agree. I might add that an airplane is just another way of moving munitions and men from one place to another. No decisive result can come from the airplane alone, anymore than it could from artillery or motor transport.

My own prophet is S. L. A. Marshall. BGen Marshall is to the armed forces of the US what Col duPiq was to the French in the late 1860's. He should be heeded.

1stLt T. G. Lee

Barstow, Calif.

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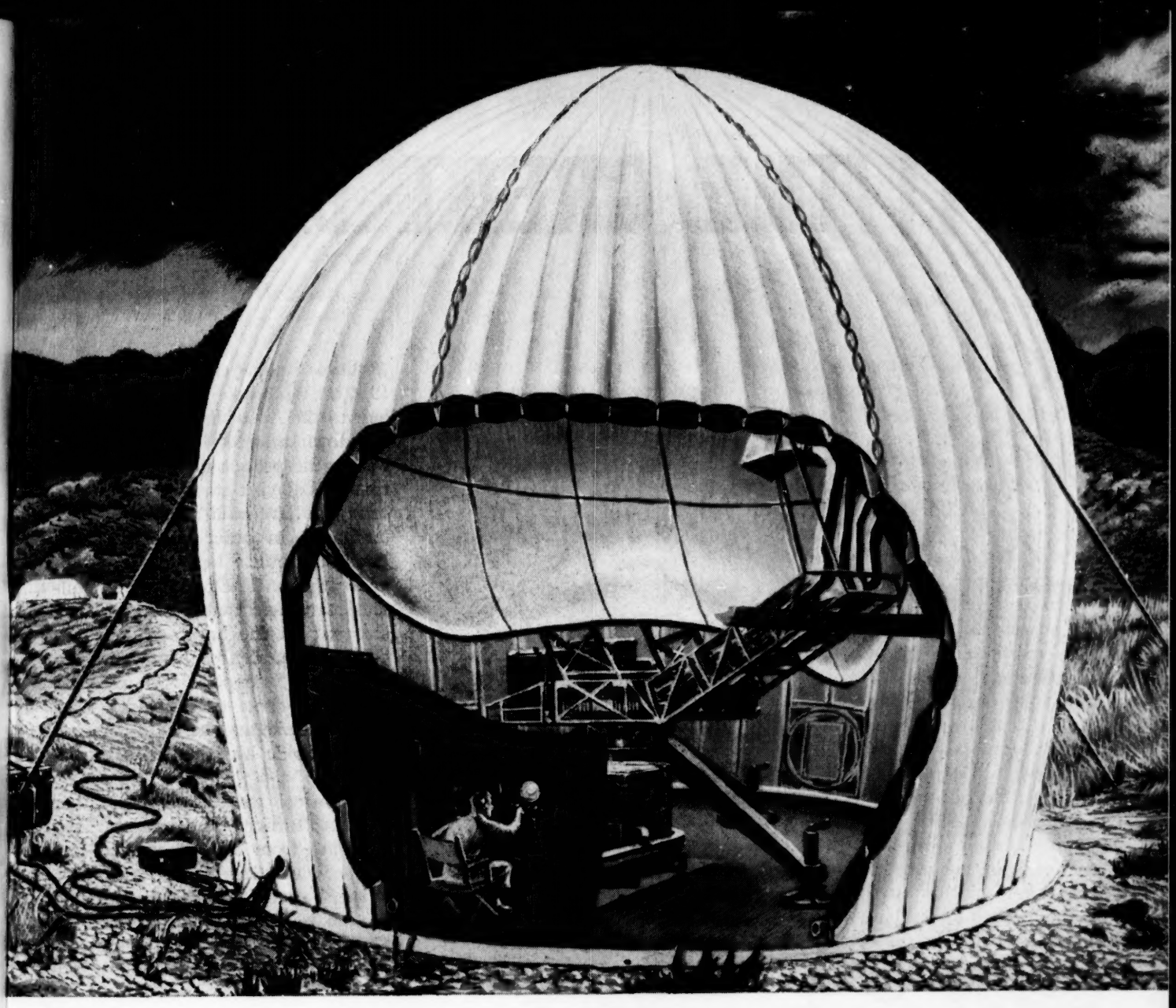

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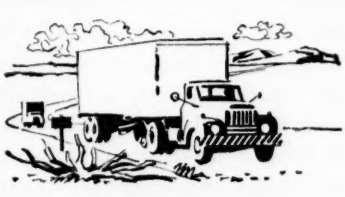

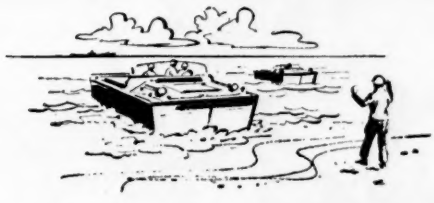

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THE GREAT DANGER: W

ONE SUNDAY MORNING IN JUNE 1914 the Archduke Franz Ferdinand, heir to the Austrian throne, was riding down a street in Sarajevo. He was in the process of making a routine official visit such as royalty for centuries have paid to parts of their territories in order to tighten the bonds of loyalty between sovereign and subjects. The Archduke's chauffeur started to make a wrong turn and put on the brakes in order to back up. Suddenly a young Serbian nationalist stepped forward and fired two shots point-blank. Both the Archduke and his wife who was sitting beside him died within minutes.

Historical research discloses that Gavrilo Princip, the assassin, was suffering from a psychopathic condition which manifested itself in a strong hatred for Austria. Although certain high officials in the Serbian Government were undoubtedly aware of the plan to kill the Archduke, no person in authority in any of the major countries was deliberately plotting to bring about a general war. Yet this incident set off a rapid train of events which quickly plunged Europe over the brink and into WWI.

Why did such a relatively minor incident spiral into a major conflict? If we analyze the course of events in the summer of 1914 the answer seems inescapable—it was war by miscalculation. The major powers permitted themselves to be carried away by the course of events with no clear and well-defined reasons for the actions they took. World events are often cumulative and in this case an initial error in judgment on the part of Austria in serving an ultimatum on Serbia led to a whole series of blunders on the part of the other major powers.

In recent years many people have been obsessed with the thought that

R:WAR BY MISCALCULATION

by Dr. Maurice H. Hellner

if another general war breaks out it will start with a deliberately launched Soviet surprise attack on the US, and that this attack will be initiated at a time when we are at peace. Military history teaches us, however, that whenever the major powers are in a state of unstable equilibrium, general war can break out through the spiraling of freak incidents, through irresponsible actions on the part of persons in small countries, and through limited engagements at a time when none of the major powers is actively planning to initiate large-scale hostilities. This is a sobering thought because it means that even if our capacity for massive retaliation deters Soviet leaders from deliberately planning and launching a surprise attack on the US, general war could still break out through miscalculation. In fact, given the awesome destructiveness of the weapons now in the hands of both the Soviet Union and the US, the likelihood of a premeditated surprise attack in peacetime is not nearly as great as that of a general war by error.

It is of vital importance that special attention be given the problem of war by miscalculation because the fear of this possibility has colored so much of our thinking on world events during the past decade and a half. Each time there is a crisis we instinctively wonder whether the situation will get out of control and spiral into thermonuclear war. We live in constant fear that world events might reach a "critical mass" and set off a chain reaction where violence becomes self-supporting and the dreaded holocaust becomes inevitable. If we examine world events since the end of WWII it is readily apparent that this fear has been the single most important factor which has limited our courses of action in time of crisis.

It is not that our leaders and our people are unwilling to respond effectively in the face of a major challenge. The thing that causes so much apprehension is the thought that in one of these recurring crises the major powers may misjudge the actions and intent of each other and start a train of events that will lead to a general war which no one desired or planned.

The danger of war by miscalculation, of course, has always been present in the world. The nature of the current international situation, however, is such as to greatly increase this danger. The present extensive system of interlocking alliances on both sides of the Iron Curtain virtually insures that a "local" incident will have world-wide repercussions. The US now has commitments to over 40 foreign countries. Many of these, in turn, have commitments to other countries or areas. For example, the United Kingdom has obligations toward her dominions, colonies and trust territories around the world, including such critical places as Hong Kong and Singapore. The same can be said of France and Portugal. Thus, the world is now like a string of firecrackers. If the fuze is lit at any place along the line, it takes fancy footwork indeed to seal off the initial explosion.

Added to this is the fact that the present rivalry between the Communist Bloc and the Free Nations of the world is an all-out one, extending into every phase of human life. In a very real sense, it is a life-and-death struggle between two alien systems. This results in a situation where every disturbance or issue becomes one of principle, and hence exceedingly difficult to resolve. This also results in a situation where events which are not in any way initiated by either of the two super-powers are immediately judged as if they were.

Closely allied to this is the peculiar role in world affairs currently being played by the weaker nations. In the present international situation the second and third-rate powers have very little capacity to solve world problems, but they have a tremendous capability to aggravate them. One of the strange paradoxes of the nuclear age is that as the gap between the two super-powers and the rest of the nations has widened, the role of the weak and irresponsible countries has increased. Many of the new nations consider that playing both sides in the East-West struggle is one of the hallmarks of independence. Time and again we have witnessed the strange phenomenon of states with meager resources and virtually no military power projecting themselves onto the center of the world stage by threatening to follow a completely irrational course of action in the hope of obtaining special favors from one or both of the super-powers.

Then there is the strong emotional factor in current world conditions. Throughout the course of history this has probably been the most potent force tending to expand local situations into large-scale hostilities. The Religious Wars of the seventeenth century, the Napoleonic Wars, WWI and WWII all demonstrate the extreme difficulty of limiting hostilities when strong popular emotions are aroused. In the present world characterized by strong ideological cleavages the emotional factor in world events may be greater than ever before.

Worst of all, when we project certain of the current trends into the future we are driven to the conclusion that the danger of a general war through miscalculation will increase considerably in the years to

come. Before we can hope to take effective countermeasures against this danger we must understand the nature of these trends.

The first trend is the increasing propensity of the communist nations to stir up crises as they grow in military, scientific and economic power. The history of Russia is one long series of attempts at expansion by piecemeal aggression. She has sought to expand all along her periphery wherever she has found weakness. That this is a good formula for success is readily apparent when it is recalled that it was by a process of gradual conquest that most of the empires of history were established.

In recent years, throughout the world there has been a gradual accumulation of highly inflammable material such as extreme nationalism, racialism, exploding populations and rising economic aspirations. The communists are like "firebugs" who go about seeking to ignite this material. In such a situation there is great danger that one of these crises may get out of control and set off a major conflagration.

Americans have learned many hard lessons in the trying years since the end of WWII. Perhaps the greatest of these is that we are in for a long series of crises. In the years to come the only kind of "peace" we are likely to know is the peace of power politics, always to be won again and never wholly safe.

The Kremlin is like a snake; if it is blocked in one place it will rear and strike again somewhere else. There is no such thing as a dramatic over-all settlement with the communists. There is no such thing as satisfying communist ambitions by acquiescing in a limited aggression. There is no such thing as blocking the Soviets in one area and settling that problem once and for all. If the communists are stopped in Quemoy they will stir up trouble in Berlin. If they are blocked in Berlin, they will try to take over Iraq. In each crisis we face we can be sure of one thing—whether we give in or stand firm, there will be another crisis in a few months or a year.

Heretofore, Moscow and Peking have been content to foment one crisis at a time with an interlude of several months in between. During the past year there is ample evidence that they are stepping up the pace. In the future we may very well be faced with two or more crises occurring simultaneously. We may find ourselves confronted with a revolution in the Far East, a political probing action in Europe, a coup d'état in the Middle East, and a large-scale arms shipment to Africa all at the same time. Such a situation would not only seriously tax our military resources but would increase tremendously the danger of a major conflagration through miscalculation. Thus, on 6 June 1959 Gen Norstad told the representatives to a 15-nation conference concerned with strengthening NATO that the greatest danger of war lay in the possibility that one of these enemy probing operations would get out of hand as a result of a miscalculation.

The second trend which is increasing the danger of war by miscalculation is the collapse of the time element in modern warfare. This is due to the progress which is being made in the missile field.

As long as the manned bomber was the only method of delivering a thermonuclear attack, both the Soviet Union and the US could entertain the hope that their detection systems could provide several hours of warning of an impending attack. During this period of time retaliatory bombers could be launched while the initial early warning reports were being checked for accuracy and verified by subsequent information. If the information proved to be erroneous the bombers could be recalled before they reached enemy territory.

The rapid progress which is being made in the missile field changes all this considerably. As we move into the missile age the warning time any nation can expect to receive concerning a surprise attack is becoming so short as to make it virtually impossible to verify pertinent intelligence information before the attack is consummated. The two super-powers are being placed in the position of having to make decisions on the basis of preliminary and sketchy early warning data with no opportunity to test the accuracy of that information within any meaningful time limits. Thus, faulty information or misinterpreted data may become the basis for an order to launch nuclear striking forces.

As the striking forces of the two super-powers become composed of missiles rather than manned bombers this dilemma will be increased in another way. Unlike bombers, missiles cannot be recalled once launched. Hence, once the order is given to launch one's retaliatory forces that order will become irrevocable. There will be no "fail safe" line or other opportunity for countermanding an order which has been made on the basis of erroneous information.

"The Kremlin is like a snake; if it is blocked in one place it will rear and strike again somewhere else."

The third trend which is increasing the danger of general war by miscalculation is the progressive introduction of small-yield tactical nuclear weapons into the armies of the major powers. At present, it is US national policy to employ such weapons when there is a clear advantage to be gained in doing so. Presumably the Soviets have a similar policy, although, unlike ours, it is unannounced.

Opinions of military experts are sharply divided on the degree of danger involved in the use of tactical nuclear weapons in limited war. Some feel that once such weapons are employed the fighting automatically passes the crucial "point of no return" beyond which each side will resort to weapons of ever greater explosive power until all-out war is reached. Others feel that tactical nuclear weapons can be used without precipitating general war provided both sides sincerely desire to keep the war limited. All agree, however, that the introduction of tactical nuclear weapons into a limited war greatly increases the danger of a general war by miscalculation.

The reason for this is that there are no sharp dividing lines between "tactical" weapons and targets on

"The American public does not generally think of the Marine Corps as playing a role in the deterrence of thermonuclear war."

the one hand, and "strategic" weapons and targets on the other. Moreover, human nature being what it is, there is a virtual certainty that each nuclear explosion will be reported by the troops of the opposing side as being greater than is actually the case (e.g. a one-kiloton blast will be reported as a three-kiloton blast). Thus, there is likely to be a built-in escalator effect in any limited war in which tactical nuclear weapons are used.

It goes without saying that a limited war must have limits, and these limits must be clearly recognizable and tacitly agreed upon by both sides. The fact that the dividing line between "tactical" and "strategic" weapons and targets is so ambiguous greatly enhances the danger that one side may misjudge the intent of the other and thereby be tempted to launch a preemptive blow.

The fourth trend which will increase the danger of war by miscalculation in the future is the imminent acquisition of nuclear weapons and missiles by "fourth countries." Within the next five years it is likely that countries other than the US, Great Britain, and the USSR will acquire nuclear weapons and missiles. This could come about either through indigenous efforts on the part of the countries concerned or through military assistance from the present nuclear powers.

The wider the family of nuclear countries the greater the likelihood that these weapons will fall into irresponsible hands. The US, Great Britain and the USSR exercise extremely tight control over their nuclear weapons and missiles. When one surveys the type of leadership which is found in some of the second and third-rate powers of the world, it is not difficult to appreciate the danger that one of them might adopt a reckless attitude toward these weapons.

In view of all these trends which are converging to increase the danger of a general war by miscalculation, what measures can be taken to alleviate the situation? Admittedly, there is no fool-proof solution to a problem of this nature. In general, however, the answer lies in developing the capability to secure a break in the chain of events in any given crisis. During this break aggressors will have time to weigh the terrible consequences of expanding their operations, and diplomacy will have an opportunity to bring the dispute under control.

The problem of preventing a general war by miscalculation is essentially one of stopping a chain reaction. It is one of preventing a limited situation from spiraling into a major conflagration. As such, it is different in many respects from the problem of deterring the launching of a carefully planned surprise attack on the order of Pearl Harbor.

The situation we are trying to avert in the case of general war by miscalculation is one in which political pressures and military operations get out of control and build up a momentum all their own. It is one in which the direction of events is determined by chance rather than by design. It is one in which decisions are made in rash moments when emotions are running high and tempers are short.

It is apparent that in circumstances of this sort the time element assumes paramount importance. Hours count for more than days, and days for more than weeks. The chances of stopping the chain reaction are infinitely greater at the beginning of the cycle than later on. A course of action which would be adequate to deal with the crisis in its infancy would almost certainly be inadequate if implementation is delayed.

In today's world, the timing of US reactions to communist probings is of tremendous importance. We must possess the forces to react promptly to aggressive situations and we must not be timid. If our reaction is delayed, the magnitude of our effort will almost certainly have to be increased, and the risk of general war will be greatly enhanced. In time of revolution or limited aggression, the most dangerous course of action we can follow is to delay our response until the aggressor has solidified his position or until the aggression has spread.

For example, there is much less likelihood that a local situation will spiral into general war if we block an attempted communist coup than if we try to dislodge a communist regime that has already established itself. If our action is prompt, there will still be friendly indigenous troops and leaders with which to work. If, on the other hand, we permit the communists to gain control of a government they then attain an air of legitimacy and we look like the aggressors. The longer the communists stay in power within a given country the more difficult it becomes to dislodge them without running the risk of general war. This is the reason the problem of liberating the European satellites involves such grave risks.

Closely allied to the need for responding quickly is the requirement for tailoring our response to the nature of the challenge. If the best we can do in time of crisis is to hint that we shall employ thermonuclear weapons on Moscow or Peiping in order to protect Teheran or Saigon, we are faced with a difficult dilemma indeed. For such a threat to be

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". . . Marines play a decisive role in deterring general war."

effective it must be credible. Yet, to the extent that it is really credible, we run the risk of inviting a preemptive blow.

If we are to reduce the danger of general war by miscalculation we must ensure that our actions, particularly the movements of our nuclear striking forces, never inadvertently suggest to our opponents that the US is actually about to launch a thermonuclear attack on them. In the modern world, there is no room for "saber-rattling" with thermonuclear forces. Such a procedure might get us into the "wrong war at the wrong time."

This does not mean that the US can afford to reduce its capabilities for delivering a devastating thermonuclear attack. It does not even mean that the US must never strike the first blow. The distinction we must make is one between capabilities and intentions. We must always maintain, and, in fact, advertise our capabilities. We must never, on the other hand, give our opponents reason to believe that we actually intend to launch an attack at a specific time. To do so is to invite a preemptive blow.

From the foregoing it is apparent that the solution to the problem of averting a general war by miscalculation has two basic elements. First, we must be able to respond to local situations immediately. Second, we must be able to respond in a manner which will contain the situation, not spread it.

With these two basic elements in mind, it is evident that the Marines play a decisive role in deterring general war by miscalculation. Can anyone doubt that the Lebanese crisis in the summer of 1958 would have spread to other areas if the Marines had not landed on such short notice? Can anyone challenge the thesis that the risk of general war would have been infinitely greater if the rebels had been able to seize control of the Lebanese Government and the US had then landed troops and overthrown them?

The American public does not generally think of the Marine Corps as playing a role in the deterrence of thermonuclear war. Yet, when we consider the problem of general war by miscalculation, it is readily apparent that the Marines have a unique role to play in preventing limited situations from spiraling. With an opponent who insists on starting brush fires all over the world, there is a critical need for the type of forces which can act in a matter of hours to put out the fire. The time to stop aggression, whether it be direct or indirect, is in its infancy.

There is every indication that in the years to come the US will face a whole series of crises any one of which might spiral into thermonuclear war. Some of these crises will be deliberately fomented by the communists. Others will be the result of impassioned fanatics in the smaller countries who fail to consider the wider ramifications of their actions. Still others will arise from sheer misfortune.

Under circumstances such as these, it is of paramount importance that the US possess the type of military forces which can quickly secure a break in the sequence of events. During the ensuing pause, Moscow and Peking will have time to weigh the grave consequences of spreading the conflict, and diplomacy will have an opportunity to bring the situation to the conference table.

Too often in the past the history of mankind has been determined by the sheer momentum of events rather than by the conscious objectives of statesmen. We must not allow this to happen in the nuclear age for the continued existence of civilization itself is now at stake.

USMC

★ ★ ★ ★

Just Warming Up

ONE UNIT IN THE SHIP-TO-SHORE movement during the Inchon landing came in to land over the wrong seawall. They quickly discovered their mistake after climbing the wall and seeing more water instead of land in front of them. Undaunted, they climbed back into their LCVPs, quickly located the correct seawall and effected their landing in a few minutes.

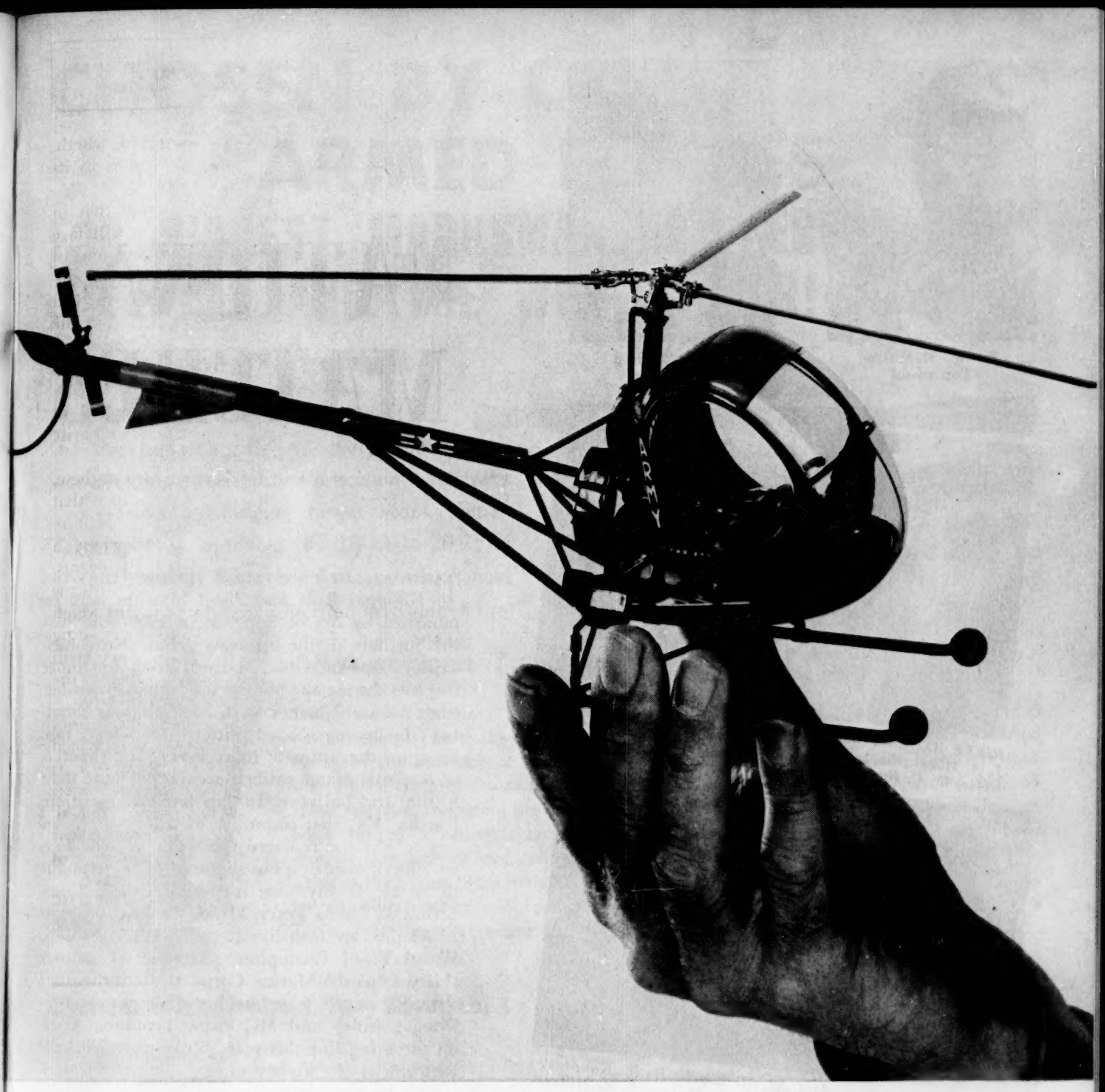
When things had settled down the next day, the commander of the unit was being kidded about landing in the wrong spot. "We didn't do anything of the sort," he replied. "The book says every amphibious landing should have a rehearsal. We were just holding our rehearsal five minutes before the real thing."

Maj W. F. Koehnlein

Economy Except with Words

OUR ARTILLERY BATTALION WAS ONE of several assigned to support a Corps which was to land on Leyte during WWII. Loading out at Hilo, Hawaii, the long voyage was to be made in an insufficient number of ships. In order to use the available cargo space as efficiently as possible, the Corps administrative order prescribed some rather specific instructions. We blinked our eyes at one, which read, "In order to achieve maximum utilization of cargo space, large items to be boxed will be put in large boxes and small items will be put in small boxes."

Col R. M. Wood



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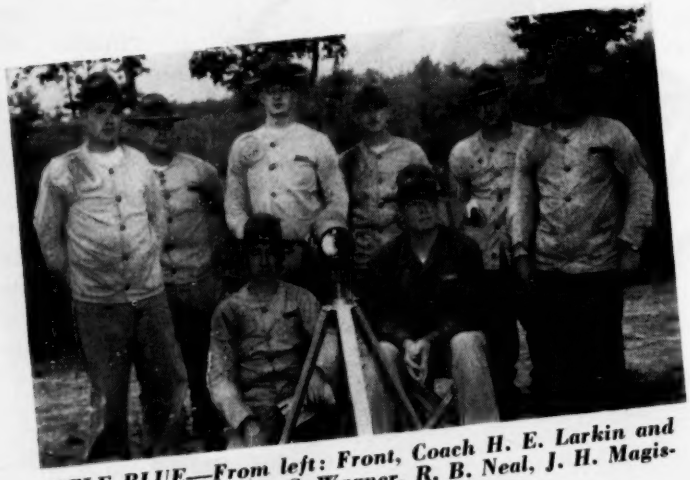
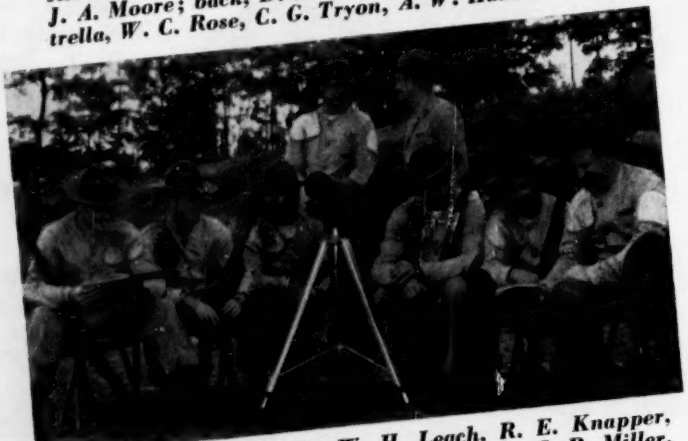


RIFLE BLUE—From left: Front, Coach H. E. Larkin and J. A. Moore; back, D. S. Wagner, R. B. Neal, J. H. Magistrella, W. C. Rose, C. G. Tryon, A. W. Hauser.



RIFLE GREY—From left, W. H. Leach, R. E. Knapper, J. A. Davenport, J. A. Kochan, J. R. Bowen, J. R. Miller. Standing are D. O. Faulkner and Coach W. C. Roach.

PROBABLY A COINCIDENCE IS THE FACT THAT THE National Rifle and Pistol Matches were established by Act of Congress in 1903—the year the Springfield rifle made its debut. No coincidence is the fact that Marines have won more trophies during the 55-year series than any other competitors. Marines work hard at their shooting to become "hard hitters"—shooters' talk meaning the ultimate in accuracy. For shooters of National Match caliber, accuracy is more than hitting the bulls-eye. In top level competition, it's the "V's" that count.

The M-1 has replaced the Springfield in service rifle competition but shooters' finesse remains the same. If anything, it's more refined. Competing at Camp Perry, Ohio, 27 July through 29 August, are men like Capt W. W. McMillan, World Pistol Champion (.38cal) and winner this year of the Marine Corps' triple individual shooting crown, Lauchheimer (aggregate), McDougal (rifle) and MC Pistol Trophies. Back on the firing line this year are AGySgts Michael Pietroforte, '58 winner of the National Daniel Boone Trophy with a perfect 250 score (23 V's), and V. D. Mitchell who is taking a 246 *average* to Camp Perry. Aligned beside these veterans is a pair of first year competitors, ASgt W. H. Leach (the team's only left-handed shooter) and ACpl J. Magistrella. Both of these young shooters were selected for the top-ranked Blue-Grey rifle teams after preliminary firings at Quantico.

TRIPLE TITLIST—Capt W. W. McMillan (left), winner of all three individual trophies in the 1959 Marine Corps Matches, is helped in displaying his awards by MajGen T. A. Wornham, BGen C. A. Allen (Director, MC Marksmanship Training Division), and Col E. L. Hamilton (Ret). He is the first man ever to win all three events.

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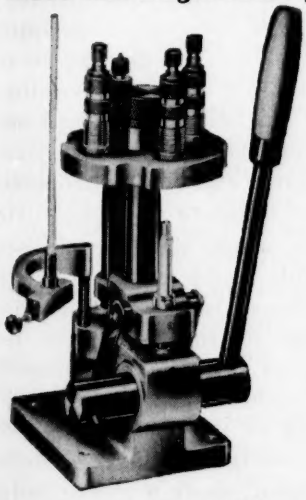

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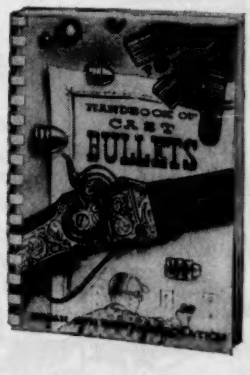

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REQUAL SCORING

By AGySgt J. F. McAllister

THE EXPRESSION, "THE MOST dangerous military weapon in the world is a US Marine with his rifle" could be expanded to include, "Even more dangerous is the irate Marine who just fired 189 on Record Day."

Too often a Marine who is actually proficient with the rifle is forced to carry the stigma of *unqualified* for a year because on Record Day something happened to cause him to miss the magic 190 figure on the score sheet. Has the point been reached where a change in rifle range requalification scoring procedure is needed in order to arrive at a more honest evaluation of individual Marines regarding their shooting ability? Many feel that the point has been reached and passed.

Practically everything else about the Marine is based on performance over a period of time—conduct and proficiency, fitness reports, eligibility for promotion—yet qualification with the basic weapon is decided on a one-shot basis. If this system is the optimum, why aren't the batting averages of baseball players based on only All-Star Game performances or other one-game averages rather than over an entire season?

In reality, would there be any insurmountable problems accompanying any change in the present requalification scoring procedure to that of a four or five-day "average" system? Possibly the biggest argument would be the "if it was good enough for me then it's good enough for you" classic, along with the "any system that has been used as long as the Record Day scoring system must be good so why change" school of thought. The Model "T" was a fine car too; occasionally you'll see one around today but try finding a Ford dealer still selling them.

A four or five-day average scoring system would not necessarily result in any drastic changes in range operations other than a little more paper work and a slight change in school range procedure. The personnel problem could easily be handled right at the range. Butt scorers and verifiers could come from the detail reporting to the range for their first week on a rotating basis to insure that no one misses more than one morning of snapping in. Staff NCOs could be used as verifiers.

Other problems involved in the mechanics of any change, zeroing the rifle, etc., could be worked out once the primary idea is accepted.

Let's take a hypothetical case of two Marines—both firing on the same range and relay. Shooter "A," on Monday, fires 189; Tuesday, 191; Wednesday, 192; Thursday, 188; and Friday, (record day), 219. Shooter "B," during the same period, fires 219, 211, 214, 218, and on record day his sight loosens, the operating rod bends, or a rub develops, and he fires a blazing 189.

Here we have "A" barely qualifying all week and on record day falling into the laps of the gods and coming up a high sharpshooter. "B" has hit sharpshooter all week and on record day, through circumstances or mechanical failure, he fails to qualify. At the following inspection "A," the 196 five-day average shooter who failed to qualify on two of the five pre-record days and barely qualified on the others, wears the "Sharpshooter" badge, while "B," with a 210 five-day average, shooting sharpshooter for four of the five days, wears nothing except a disgusted expression. In all fairness, who really rates sharpshooter? Who is actually the better shooter? If they fired a sixth day who would be the best bet?

Advocates of "record day pressure" present the argument that one of the main functions of the present scoring system is to place the requal shooter under pressure while going for the marbles. The value of pressure on the requal shooter is not being questioned. In fact, under the five-day average system the pressure would be on the shooter all the time which would certainly seem to answer questions on this point.

It follows that were "A" a real pressure shooter he would average better than 219 under an average scoring system with no 188 and 189 days. Keeping in mind that on these low score days "B" was scoring 219 and 218 while expending the same amount of ammo, economy reasons should dictate at least some consideration for the average system since the cost per round for both shooters was the same.

No doubt there are many who have had similar experiences on the range. Quite often a shooter, failing to change dope before firing the 300 yard rapid string on one of the pre-record days, shoots a tight group barely on the target and finishes the day's shooting just going through the motions. He doesn't care — the damage has been done. If every shot had counted he would have made sure of his dope change or, in case of any mistake, would have had to bear down hard during the rest of his firing to make up for his mental lapse.

There are basically three types of requal shooters in a range detail: 1) The experienced shooter who needs very little coaching, 2) The average shooter who, with occasional help, can reasonably be expected to stay near sharpshooter, and almost a sure bet to qualify, 3) The naturally poor shot who cannot consistently stay in the four ring even if the target were glued to the muzzle of his rifle.

The average system of scoring would have very little effect on the experienced shooter since his daily scores would probably be consistent. Should he have a bad day, and even the experts run into them, the other scores would hold his average up. This system would allow him to know where he stood at all times. If he were having trouble he would get quick help or advice from the coach and not wait until preliminary day as now happens.

In the case of the poor shot, nothing but time and patience can help. As long as a score is kept, this man is in trouble. Should he have one or two lucky days and shoot over 190 and the rest of the time miss by close scores, it's possible under an average system for him to qualify.

While firing on the range and firing in combat are not strictly comparable, the end result for the individual is somewhat the same. In combat there are no scores kept nor badges awarded for various degrees of proficiency with the rifle. The fact that the Marine came through the operation and accomplished his mission speaks for itself. On the range the individual is in effect firing against himself; the wearing of one of three badges, or none at all, advertises the result.

It's true that on the range the targets aren't shooting back. It's also a fact that in combat a Marine has so many rounds of ammo; he isn't expected to kill one enemy for each round but he is expected to provide effective fire—*over the entire operation,* not just on the last day of combat. Few Marines have failed to do this when called upon; no doubt many were unqualified record day shooters.

If shooting badges are to be worn with even more pride, if the magic phrase "qualified rifleman" is to continue to be an important consideration in the evaluation of the individual Marine, if individual pride in his shooting ability is to be important to the Marine, give him the opportunity to prove his ability over a period of time rather than on a one chance basis.

The Marine who rates the "Expert" or "Sharpshooter" badge following five days firing can take pride in the fact that he earned it by consistently making high scores and not on a possible record day fluke. The "Marksman" would have the knowledge that he was capable of qualifying over a period of time which might provide the confidence and incentive to improve the following year.

In the case of the unqualified shooter under the average scoring system, he would be aware that he was given ample opportunity to qualify and would have that same chance offered next year. While he can take no pride in not having qualified, the Corps could certainly take pride in the fact that it offered him a fair chance. USMC

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EMBARKATION READY

By Capt G. F. Cribb, Jr.

"SEMPER FIDELIS." NEXT TO THIS motto, there is a single word, all important to every individual Marine, platoon, battalion, regiment, division or force. The traditions of the Marine Corps have been made and perpetuated because of this word — *ready*. At Belleau Wood the Germans called Marines "devil dogs" because the 4th Brigade was ready. Mount Suribachi was captured by the 28th Marines because they were ready. The tortuous battle from Chosin Reservoir to Hamhung brought the 1st MarDiv "out of the valley of the shadow of death" with tremendous casualties to the Chinese, because these Marines were ready.

The past importance of being ready is only a minute measure of the requirement for being ready now and in the future. The creation of atomic and hydrogen weapons and the more recent development of projectiles to hurl these destructive forces across oceans in a matter of minutes have caused every phase of military operations to be revamped.

A combat outpost has been established across the DEW line to guard against attack over the strategic Arctic and to further enable the Strategic Air Command to effect immediate retaliatory action. Placing the *Wisconsin* in mothballs marked a new era in the concepts of naval warfare. The Army is forming into Pentomic divisions. The emphasis is on early warning, quick retaliation, expeditious deployment and dispersion.

The Marine Corps has changed in many respects. The concept of vertical envelopment has been adopted. The infantry has been reorganized to operate as independent battalions. The "big guns" have been placed on tracks and named "monsters." Antitank Companies have become a bunch of "things." Fifteen-mile-a-minute stove pipes have been adapted to close air support. The beans, bullets and baggage burdens have been removed from the tactical units. The WWII concept of battalions abreast in the

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amphibious assault has been replaced with battalions in line. Every Marine has been indoctrinated in atomic warfare. Much has been done to make us ready for whatever may come, and it has all been based on the principle that to be ready, we must be fast: fast on the trigger, fast on foot, fast in skill, and most of all, fast in methods. Our efforts toward this end have created an excellent state of readiness, but readiness must be continually maintained and improved. The task is endless, and we must examine every area where there is a possibility for improvement. One area is embarkation. We must be prepared for rapid embarkation, for embarkation readiness is as essential as a properly functioning M-1 rifle.

Introducing embarkation into this article may cause you to want to set it aside and turn the pages to a more interesting subject, for the voluminous problems connected with embarkation create immediate hostility in one's mind. This may be the primary reason we are not as embarkation ready as we could and should be. When the problem of embarkation is confronting the "Old Man," S-3 or 4, how many times have you heard, "leave it to the 2d Lt who has the additional duty as Embark Officer," or "let that go, the ship's Combat Cargo Officer will work it out on his liaison visit." Stop for a minute and try to figure the time it would take to effectively combat load one division in the event it were suddenly committed for operations against an aggressor. Some would guess it could be done in a week, others a month, and there are those that live dangerously that would come up with a figure of two days. Sure, we can hasten to the pier en masse and get most of our gear on board the assigned vessels in some fashion. The question remains. Are we ready *now* for an expeditious outloading that would support the tactical situation ashore when we reached the objective? When you think of Ship's Loading and Characteristics Pamphlets, Cargo Manifests, VS & P Tables, UP & T Tables, Embarkation Rosters and many other such forms, it will cause doubt. These are all time consuming, yet from experience we have learned that the information contained on these forms is vital to the successful accomplishment of any ship-to-shore movement. It is essential that each form be well planned and accurately completed for amphibious units to cross the beach and receive the required support in chronological order. But how is it possible to maintain readiness in this respect? The answer is pre-planning and preloading of vital supplies. Many will say, "this is an impossibility, for the doctrine that the loading must support the tactical scheme of maneuver ashore precludes a plan of embarkation for an unknown objective." This doctrine is indeed one that cannot be disregarded, but there is a way to achieve embarkation readiness and still fulfill the requirements of this doctrine. We must be ready to move and it should take no more than the gunny's yell, "saddle up." How can such a fantastic thing be done without S-3 issuing his operations plan, without the Embarkation and Combat Cargo Officers burning the midnight oil, without S-4 figuring his square, pronouncing his marriages, and numbering the prime movers? Let's look at some facts, some other doctrines, and see what can be done about this situation. Let's achieve a state of *embarkation readiness.*

First, let's look at the methods now employed in planning and getting on board. The embarkation people do everything after learning the tactical scheme to be employed at the objective. Once this has been determined, little scaled pieces of cardboard are cut and fitted in the drawings of the lower holds to represent those vehicles, heavy lifts, etc., that will be landed last. Much is considered in the placement of these little cardboard trucks: priority, serial number, hatch openings, coamings, obstructions, and boom capacities. After cutting many hundreds of these cardboard replicas and fitting them into the jigsaw puzzle, the first wave gets on board and the paper work really begins. Weight, square, cube, location, number of lifts, and hatch times are worked out, and elaborate plans and cross references prepared. The forms are compiled and submitted for approval to the Troop Commander and ship's Captain. Once approved, many other functions must be accomplished by the troop units. All are time consuming, well known to the reader, and will not be elaborated on here. Ammunition, rations and fuel are often loaded at a port other than the port of embarkation. This causes further delay in getting underway for the objective. In the event of an ICBM attack against the continental US or an Allied nation, there may not be time for all this planning and preparation. Marines may have to go to sea on extremely short notice, ready to strike any objective on the face of the globe. Our Corps will be of vital importance, yet we could risk its annihilation while we do our paper work, while we stage, or while we load at the pier. In the past, the mere fact that outloading took place in a secure area caused embarkation to be considered primarily an administrative problem. Today, there is no such thing as a remote area. Outloading could be as much of a tactical problem as the assault. We must move before we are hit, and it is of the utmost importance that this receive immediate attention. Certainly there can be an embarkation readiness far superior to our present methods. A solution is offered here; there are undoubtedly many others. The point is, we must remove time lag from outloading techniques.

Pre-planning the load is the first consideration. Any attempt to preplan an embarkation must, as stated earlier, consider the tactics to be employed at the objective. It matters

not where it may be. The scheme of maneuver is not of real importance for whether the assault will be frontal, flanking, or vertical, it will not be accomplished by "Remington Raiders." It must be accomplished by rifle companies, plus or minus. Tactics resemble football plays. You do not use a tackle as quarterback, nor can you make the extra point with a weak line. Accordingly, to hit any beach, take any hill, accomplish a raid, or establish an MLR, rifle companies must carry the ball. In any combat load, the initial requirements of the rifle companies must be priority items. Their equipment is well established in Tables of Allowances. Requirements vary little from one operation to another. A company can easily be accommodated in the upper holds of any APA or fit on the forward tank deck of an LST, or be embarked in LVTs on an LSD. Co "G," 2d Bn, 3d Marines, or Co "C," 1st Bn, 8th Marines, occupy the same number of bunks, have the same square of vehicles, will expend the same amount of ammo, water and rations, and will be reinforced with the same weapons and specialist personnel. The assault companies reach the objective at a given minute after H-Hour, and regardless of which companies may be assigned to the first waves, they will reach the objective in one of the few types of lighters or amphibious vehicles. The capabilities of helicopters, LVTs or Papa boats are facts, and not knowing which will be in the first waves of a particular operation does not preclude making a satisfactory loading plan in advance. These minor details can be worked out at sea. Troops can be transferred prior to D-Day when and if necessary. Their heavy equipment still must be landed in a scheduled wave from the ship on which it was originally loaded.

It is policy to billet boat teams near their planned debarkation station, but this is another non-essential. Troops that are indoctrinated in amphibious ship characteristics will "lay up" to RED ONE in approximately the same time as they will BLUE SIX or GREEN TEN. This has been proven many times when sea conditions precluded utilization of the assigned debarkation stations. H-Hour still went on time and the first squad arrived on the right flank of BLUE beach as planned.

All of these points, plus several not mentioned, add up to the fact that from the troop standpoint, rifle companies could have an SOP loading plan designed for their loading in certain upper holds, and that such a plan would be workable from any ship at any objective regardless of the manner in which the assault is to be made. Such a plan would only require versatility to meet any situation that could arise. This may sound fine, but more is needed in support of the riflemen. What about engineers, the "four deuces," the "Things," the "fifty-ton wire retrievers," a service support unit, and perhaps special services with its fishing tackle? How do they fit in? Some do not warrant a place in an SOP loading plan that is to be effected expeditiously, for it is the tactical units and their initial support which must evade aggressor missiles and get to sea intact. In the event it became necessary to put this plan into effect, those units not included in the SOP loading plan would deploy or disperse as directed by the FMF commander and be in a standby status until the estimate of the situation is known and shipping can be assigned. They could still follow up in time to be effective or, if destroyed, such support could be obtained from elsewhere. The main point is, our ready assault force was hurriedly deployed at sea.

Let us now look at some of the essential heavy units that must be considered in an SOP loading plan. Tanks are the biggest but they are not much of a consideration for they do not just fit anyplace. They are scheduled into the situation at approximately the same time. At Iwo, Inchon, Egypt, more recently Lebanon, tanks were scheduled in approximately the same wave. The H-plus factor always provides for their arrival at the beach as soon as there is sufficient foothold. Often tanks are "on call." In any case, they must get ashore in an LCU or LST. In any loading plan, space must be allocated in either of these types of lighters and they can be landed

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whenever the troop commander sees fit to utilize them. The number of tanks that can be accommodated on either lighter is a well-known fact.

The timing of other heavy units is about the same. We know when we need them in practically any situation, and when it will be feasible to schedule their movement ashore. In this connection, look through your past operation orders. Times vary little. In writing an SOP embarkation plan we would not know where the landing would be made; therefore, the plan must include adequate gear for overcoming the most hostile conditions, either from the enemy or beach characteristics. The possibility that the initial assault may be entirely by helicopter will have no bearing on this equipment, for it still must get to the objective in some form of lighterage. "Whirleybirds" have made a real contribution to logistic support, but like any machine, they have their capabilities and limitations. Furthermore, there is little probability that the Marine Corps will soon have on hand sufficient helicopters with a capability large enough to entirely eliminate ship to shore movement on the water.

After assigning space to the rifle companies in our SOP loading plan, the heavy support units would be allocated space in the lower holds in such a manner as to fulfill the combat loading requirements and to maintain a certain degree of flexibility. It is true, there could not be 100 per cent effective utilization of space, but an outloaded task force using only 70 per cent of the ship's space is better than destruction of our total forces in Morehead City, Norfolk, Seattle, or San Diego.

Although an SOP loading plan would be ideal, there are many readers now shaking their heads, for such a plan appears an impossibility. There are too many factors which seem to preclude its development. An old adage among Leathernecks reminds us that, "nothing is impossible, it just takes time." In the past, we have had time to prepare combat loading plans. We no longer possess this insurance. The time required in our present methods of preparation for combat loading is inconsistent with the realities of late twentieth century warfare. We must know *how* we are going to embark before the "panic button" is pushed.

An SOP loading plan is not impossible. The principles have been tried and tested, landing after landing, with the battalions attached to the Sixth Fleet. The combat load of these reinforced units has worked under varied operation orders on many beaches with varied characteristics. These loads have proven capable of adjustment to fit several unforeseen situations. It is true, shipping was known when the plans were conceived, and it is a good subject for debate that a satisfactory loading plan cannot be made without knowing the ships we will have available. This particular point is the most difficult to overcome, but "retreat" is nonexistent in the Corps' vocabulary. A thorough study of ship characteristics will assist in overcoming this obstacle. It will decisively show that the characteristics of amphibious ships now in commission or on the drawing board do not deviate to such a degree that a satisfactory combat load cannot be planned in advance. It may be necessary to coordinate with BuShips to effect some minor changes in certain vessels during their next yard period, for some ships of a given class no longer possess their original makeup.

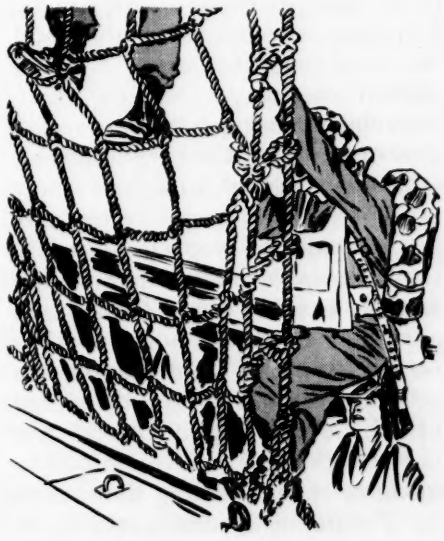
Let us examine some data on ships of the "gator" fleet, and consider first, the basic troop transport, the APA. At the present time there are two classes of APAs in existence with the exception of the *USS Monrovia*. These ships have either a C-3 or Victory hull. Those that have voyaged on the *USS Chilton* (PA-38) rode a C-3. If you fed the fish from the *USS Rockbridge* (PA-228), your misery was derived from the rolling of a Victory hull. The characteristics of these hulls differ to such a degree that a planned load for one would cause indigestion in the bowels of the other. Accordingly, a plan would have to be made for each class. In either case, the accommodations will amount to a BLT. Priorities would be unchanged. A plan is possible however, that will fit *Chilton* and her sister ships, and an alternate plan would be prepared to fit *Rockbridge* or her sisters of the sea. When the time arrived to commence loading, the battalion com-

mander would be notified of the class of ship assigned, reach into the files for his loading plan and "move out" with his pre-designated gear.

It is agreed that ships of the same class, like women, are not quite alike, but also like women, they have much in common. As an example, *Chilton* and *Cambria* differ in troop capacity by 53. The difference in vehicle space is approximately 450 square feet, and in cubic feet they differ by 6000. The latter difference is further reduced when you consider the broken stowage factor. These 53 men, few jeeps, and small amount of cargo, appear to be the reason we still insist in laboring over every load. This small difference is no justification for starting a time consuming loading plan after the objective and shipping are known. Other classes of ships show the same small differences. The attack cargo ships, such as the old lady of the sea, *USS Thuban* (AKA-19), are of the C-2 hull class, and, with the exception of the newly developed KA, all are her sisters. Of eight ships compared in this class, there is a maximum difference of 60 troops and 2000 square feet. LSTs of any class carry approximately the same number of vehicles. LSDs are limited to three LCUs and a fairly similar amount of cargo.

The number one hold of vessels of a given class is approximately the same width and length at each deck level. The major difference is in the height to the hatch coaming and an occasional structure which the individual ships have installed for miscellaneous ship necessities. Some have split holds to increase water tight integrity. These differences, however, still permit approximately the same number of jeeps to be stowed on the first deck, a similar number of weapons carriers on the second deck, or "six by sixes" on the third deck. On certain ships it may be necessary to move a sail locker or similar space, but with such minor changes a loading plan for a BLT that would fit on one would fit on any. The forward air controller's radio jeep would come out of number one hold at the same time on either ship. The floating dump would likewise be water-borne at the same time. Hook times do not vary to such a degree that priority number eight would not reach the beach at the same time from either ship. We would receive our serials as we planned them.

In an SOP loading plan, the like holds of every ship of a given class would have to be considered, and the number of vehicles or cargo assigned that particular hold carefully considered so that what would fit one would fit all. There would be a very small loss of space in any particular ship if this plan were worked out in detail and we ascertained that serials 182, 183 and 184 would all fit. Though all the many and varied details are not included here, a few S-3s and embarkation experts could develop an SOP loading plan for BLTs and possibly larger units. We know what our shipping requirements are, we know which units we use first, and we know the classes of shipping. All that is necessary is that we have an alternate plan for each class of ship, for we cannot anticipate which will be available when the time arrives.

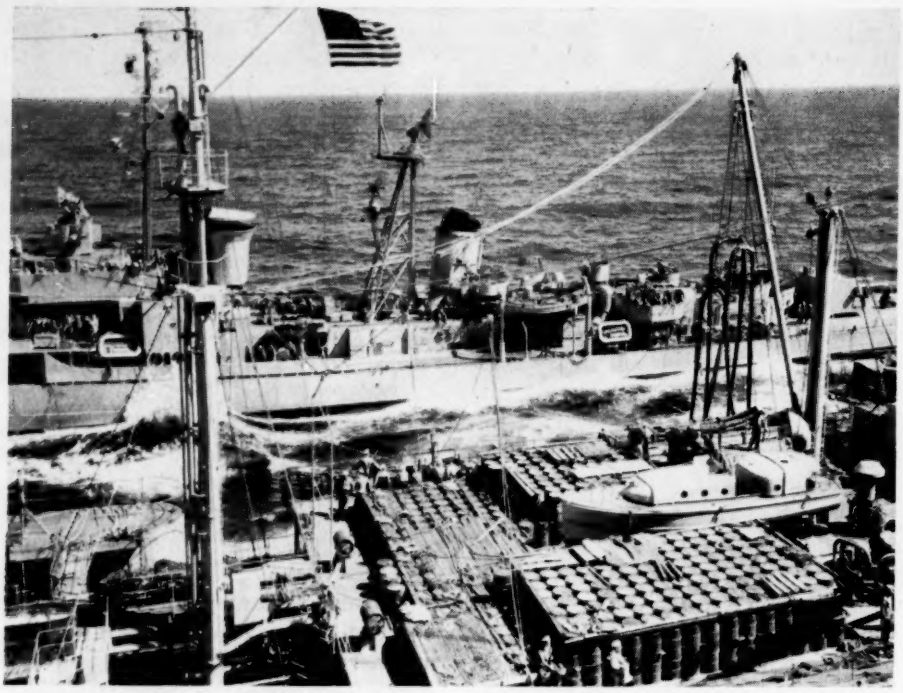


By having an SOP loading plan, many advantages are created to enable the troop units to stay embarkation ready. Vehicles can be permanently identified with their priority numbers. Bulk organizational equipment can be packaged and marked for the load by holds. Staging becomes constant. Ship's platoons and dock details can be assigned, and those individuals that are to be cargo handlers trained in their role instead of having to be instructed by a ship's boatswain's mate once they arrive aboard the ship. Troops would better understand how they fit into the overall picture in the amphibious assault. More expeditious lifts could be readied. These are only a few; there are undoubtedly many more. All require time, and it is again emphasized, we have the time now. We are eternally training and improving our tactics. It is time for some thought to be devoted to a better scheme for expeditious outloading in order that we may efficiently employ this tactical ability.

As mentioned earlier in this article, there is more to do than make a satisfactory SOP loading plan, for even with the time this plan will save, time required to embark would still be unacceptable. The time required to load troops, vehicles, and organizational equipment is nil compared to certain bulk cargo. The real time consumers in loading are ammunition, rations, camp equipment and fuel. It has taken 48 hours and more at the Hampton Roads ammo anchorage on numerous occasions. After ammo loads are planned, there is the necessary coordination with the depot, the transfer from magazine to barge, and finally to the ship, where vertical stowage is often disregarded to facilitate getting underway on time. Such a system is not acceptable, yet it continues, TRAEX after TRAEX, and repetitious NELM loadings one after another. This writer has often heard the stevedores at the Naval Supply Center state, "Man, this is the same stuff we put on a ship just like this last month." It may not be exactly the same, but loading manifests will show that the stevedores were not far from wrong.

Amphibious ships carry ready ammunition in the ship's magazines, and could likewise carry ready troop ammo in troop magazines. It is seldom that an amphibious ship is committed for operations that would require utilization of troop ammo spaces. If such a commitment did occur, the effort necessary to make the space available does not outweigh the necessity that troops have their ammo where it belongs. It belongs in the ammo holds, ready for the objective at all times.

The required units of fire for all weapons at any objective average a fairly stable figure. A feasible combat load of this bulk ammo can be made right now, with proper stowage. Absolute vertical and horizontal stowage could be complied with and the ammo could be placed in a



better lifting container that would provide for more expeditious offloading. It would be necessary to lose some cubic space to provide for routine inspections, but we would be ready in this respect with a sufficient supply of ammo to initially support any operation. This ammo must be unloaded at each yard period but this would provide for a more thorough inspection and provide a time to replace outdated stock. When ammo is required for a TRAEX, or other such training, it would be drawn from the supply on board, and replenished as soon as the exercise was completed. Better ventilation and fire fighting apparatus may be necessary in some ships, and it would be essential to billet a troop ordnance specialist on board with the Combat Cargo Officer.

Like ammunition, amounts of rations, water and fuel required at any objective are quite well established. The majority of the food items are not packaged for immediate consumption. Bravo, Charlie and assault rations could be stowed in the lower holds that do not adapt themselves to vehicle stowage. Canned water, vacuum sealed, could be stowed and, needless to say, this supply of water would be better in quality than that sometimes received at the beach in the wornout expeditionary cans. One lift can be so packaged that it would contain one day's supply of rations, water, and small arms ammo for a rifle company. Such a lift could be adaptable to be transported by landing craft, helicopter, or truck. Not only would this save time unloading, it would abolish the supply officer's nightmare in preparing for any amphibious operation. Camp equipment, sand bags, barbed wire, and many other items now lying idle in warehouses could be properly stowed in the troop space of amphibious ships, and the Combat Cargo Officer held accountable. Once a unit embarked on the vessel for an operation, the property account would be picked up by the unit Supply Officer. Not only would this relieve unit commanders of maintaining these items in a state of readiness, while attempting to train with the same equipment, it would ensure the availability of good equipment once the objective was reached. Best of all, it would require no time to load once the unit had to move. With adequate security and inspection we would constantly know that we were hours, even days, closer to the accomplishment of any amphibious mission we may be called upon to execute. With package lifts, instead of relying on passing crates and boxes to a cargo net under the square of the hatch, time would be saved at the objective and a large number of men from the ship's platoon would be released for more vital duties ashore.

There are numerous small details connected with embarkation that have not been mentioned here. Many are considered administrative, yet anything that delays embarkation is no longer an administrative problem. Every phase of loading has become a tactical consideration. Looking as far back as the Civil War we can see the advantage of being ready. Stonewall Jackson caught the Union Army by surprise on numerous occasions because his troops were always ready to move. They did this so rapidly that the whereabouts of his force was difficult to determine. You cannot destroy what you cannot find. This may be the key to defeating the enemy in the future. With pre-loaded ships and preplanned embarkation, the vital FMF would be difficult to find, even for a mastermind missile. We could embark at a port if time and situation permitted. If not, we could deploy and rendezvous with assigned ships somewhere along the seaboard. The backbone of our Corps would be dispersed at sea, in proper components, ready to hit the enemy at the most advantageous point.

As stated previously, the satisfactory answers may not be here, but there is an urgent need to put WWII embarkation methods on the shelves with the history books. We need a plan that could be put in effect with a single dispatch from CG FMF Pac or Lant: EXECUTE PLAN ALFA DASH ONE X BLT ONE DASH TWO ASSIGNED CHILTON X TWO DASH TWO CAMBRIA X THREE DASH TWO FREMONT X OVERAGE ON MATTHEWS X. The 2d Marines would be moving out. Maybe it can't be quite that simple, maybe it can, but there is only one way to find out. Let's get some embark and operations people working in that direction.

The requirement for a ready amphibious force is vital to our national security and cannot be overemphasized. Our primary mission as Marines behooves that we leave no stone unturned in our continuous efforts to achieve a constant state of readiness. The present requirement to plan every outloading amounts to a boulder in our path. We are capable of removing this obstacle. Let's give it the dynamite. We must be embarkation ready. USMC

TWO ROUNDS: ONE GENERAL, ONE HORSE

by Melvin M. Johnson, Jr.

A famed gunsmith argues for better weapon design

SMALL ARMS ARE POOR RELATIONS in the wonder weapons family. Spend the research money on missiles to mangle multitudes is the cry. Never again, so they say, will the armed private win wars. If the loud lobbyists in and out of the armed forces are right, then we should let the whole small arms problem rot—I should say, let it continue to rot, because real progress has been dead for 30 years and more.

Most of the basic elements in modern small arms fired rounds in war more than 50 years ago. What passes for progress adds up to lily-gilding, whittling and fluff. Armorers have slowly and grudgingly added some small part of recent vast advances in metallurgy, plastics, powders and primer elements.

For those wanting the technical details, I have prepared a non-progress report (*Small Arms Stagnation*) which accompanies this article. To me it is a shocking indictment, not of any person, company or organization, but of minds that failed to see what the armed fighter does and the tools he needs.

Counting Korea, over 20 "small wars" have flared up since 1945. Many more have been near misses, stopped only by a quick, precise show of force—force tailored to a limited war capability ready here and now. Never in military history has the small-war fighting man, equipped with an effective weapon, been more vital than today. Small arms have never been more dominant than since 1950. Slowly, the light dawns.

What does the armed private do? Well, at the Battle of Saratoga, one Continental rifleman, Timothy Murphy by name, with a double-barrel muzzle loader smote a British general's horse with his first shot from the 300-yard line. With his second squeeze he killed the general. For more than 100 years Tim's target shooting set a standard of small arms performance. More than that, it shines as a logistic dream: two rounds—one general, one horse.

Murphy was as rugged as any of Dan'l Morgan's mountain riflemen. Strong as an ox, he'd have muttered mutiny if he had been reborn to carry the logistic load in WWII and Korea. Here are the figures: 10,000 rounds of rifle fire per casualty; 50,000 rounds per kill. Such is modern machine-musket fire. Stalwart old Dan'l Morgan himself would have chosen his historic British flogging rather than back-pack those cartridges over the frozen Korean ridges.

Having gone from the sublime to the pathetic in rifleman efficiency, let's look at the tools needed to do a better job in the future.

First, before we can evaluate the future, we must recognize three common denominators of small arms. These are the three "T's": target, terrain, triggerman. Of these, target and triggerman are human; the terrain quite inhuman. But none has changed much. The target has, perhaps, changed slightly by adding body armor. Also, some enemy prove, for some reason, harder to kill.

Terrain and visibility for shooting have not changed. No doubt Tim Murphy had a clear morning with the sun behind him. But the "fog of war" is first and foremost over most small arms terrain areas, and we must not forget the shadows of nightfall. This area, slice it as you will, is a basic 300 yards deep. This goes for anything up to anti-personnel death rays.

Our triggerman varies in skill

from the sublime sniper to the ridiculous rifle bum. The latter was a fumbling, formalized facet of firepower in the times of massed targets. The super-sniper always was, and always will be, a specialist never to be ignored. Thus, it has always been plain foolish to say that every "rifleman" must have a sniper rifle. It is equally silly to urge that since no lout can hit a barn door, all riflemen should carry clubs. Neither does it make good sense, since some shots can score hits at a mile, to muster all militia with mile-muskets.

Two basic small arms must evolve for future man-to-man fighting. These will be:

1) The "free-hand" weapon. The non-rifleman, in any branch, service or section, must carry this with both hands free, yet draw and fire effectively *from either the shoulder or one hand* up to 100 yards.

2) The "Tim Murphy" weapon for trained experts. It must get economical, effective hits up to 300 yards by accurate aimed fire; up to 600-880 yards by controlled bursts—a salvo, if you will, of several shots to account for long-range aiming errors.

Now, as a concession to past popguns, it may be necessary to identify these needed weapon *types* with stalemated small arms. Therefore:

Free-hand weapon equates to pistol and submachine gun and carbine.

The Tim Murphy weapon fits with semiautomatic rifle and sniper rifle, auto-rifle, light machine gun and machine gun.

The ideal free-hand arm is an all-service problem, one specifically for the Army. We must issue a useful one-man weapon of reasonable effect to everyone in uniform, from rear-rank to JCS. This weapon should have five major features:

1) Carries in a pistol holster.

2) Fire from shoulder with unfolded or holster-attached stock.

3) Average effective range (standing) up to 100 yards; prone, 150-200 yards in fast, semiautomatic bursts from a 10-15 shot magazine.

4) Semiautomatic only; not full automatic.

5) Weight of some 3.5 pounds complete.

And it should have these characteristics:

Mr. Johnson, a graduate of Harvard Law School, is one of America's most talented weapons designers. A former Marine officer, he has been a consultant to the SecDef and is now Director of Operations of the Dardick Corporation. The picture at left shows the author firing his machine gun (1940).

Small Arms Stagnation

by Melvin M. Johnson, Jr.

Here for the technically minded Marine is the background to my claim of creeping dry-rot in small arms weaponry. For brevity it is in note-and-comment form; somewhat of a pocket guide to the art of tinkering in the name of progress. Here goes:

- **The US Pistol:**

Patented prior to 1900, the US .45cal pistol was adopted in 1911. Nothing substantially better has been produced in 47 years.

- **The US Rifle Cartridge**

The .30cal cartridge for rifle and machine gun is Model 1906, rimless. This 150-grain bullet, at 2,700-2,800 foot seconds, has been standard over 50 years. Currently as the 7.62mm round, its case length has been shortened .55 inches, reducing its loaded length from 3.34 to 2.80 inches. This is comparable with minor refinement to the .300 Savage commercial cartridge some 40 years old.

- **The M1 Rifle:**

The US M1 Garand semiautomatic rifle represents a design nearly 30 years old. However, its basic system goes back 50 years to the Lewis front-lug, gas-unlocked, turn-bolt system; its en bloc clip to sources 50 years (possibly Mondragon) and 70 years (Mannlicher) old. The Germans discarded that type of feed-functioning clip some 60 years ago for the Mauser-US M1903 strip-clip.

- **The M14 Auto-Rifle**

The new US M14 (M15 with bipod) automatic rifle is a minor modification of the M1 Garand. However, the gas system of the M14, and of the new US M60 machine gun, goes back some 35 years to the White (US) design which was rejected 30 years ago in the White semiautomatic rifle. The M14 (M15) offers a 20-shot detachable box magazine, similar to the 40-year-old Browning Automatic Rifle, M1918. Mr. John C. Garand offered a semiautomatic rifle with a 20-shot magazine over 30 years ago, but such a magazine was not then desirable for close-order drill.

- **The M60 Machine Gun**

The new US M60 general-purpose machine gun embodies the basic gas-operated, front-lock, turn-bolt system of the 1910-14 Lewis gun. More specifically, the M60 combines features of the 1942-44

Caliber: .224-inch slug at 2,000 foot seconds; 35-50 grain.

Pressure: not over 35,000 pounds per square inch. There is no sense seeking an extra few hundred (200 or so) foot seconds velocity in such a weapon at the expense of 10,000-15,000 pounds-per-square-inch increased pressure. Such extra pressure is entirely unprofitable, endangers functioning, increases wear, imposes a heavier mechanism on the user, and provides only paltry payoff in penetration and trajectory.

The grip should contain about a dozen or more rounds and provide the most flexible loading features.

Ready for action, the mechanism should be enclosed against dirt. If possible, the trigger should have a double action feature like the common revolver or the German P38 pistol.

This weapon could be fired as a pistol from vehicles, or at close ranges of 10-20 yards. Otherwise, it is removed from the holster when required and fired with unfolded stock like a small or substitute rifle, which it is. Extensive tests (including mine) indicate that average shooters score four times as many hits from the shoulder as with one hand.

Such a weapon is not radical: the shoulder-pistol concept has been seen in the old WWI Mauser (1900) pistol, WWI Luger (both with holster-stock), and the most recently adopted Russian shoulder-pistol (not to be confused with any submachine guns, "machine pistols" or carbines). The writer developed a weapon of this type about 1944 but the holster-pistol subrifle idea was not ready to catch on then in the US.

The Army and Marine Corps need such a weapon for all men not carrying the rifle. The Navy and Air Force, too, require such an emergency weapon. Precious few people can hit anything beyond ten yards with a pistol (either fired or thrown) anytime, much less under combat stress. The old M1-M2 carbine, though shoulder fired, is too clumsy to carry and too heavy to holster. Take a long look at the list of personnel in all the services whose duties require both arms and hands free, yet who may badly need shoulder weapon firepower in occasional,

German MG42 machine gun and German FG42-44 parachutist's auto-rifle. The M60 weighs 23.5 pounds, two pounds less than the simple, low-cost, quick-changed barrel MG42 which West Germany has now quite logically re-adopted. The M60 mounted on a tripod weighs a total of 46 pounds—the same as the US Browning M1919A6 air-cooled gun on an M2 tripod. Over the past 25 years there have been US Army requirements for a belt-fed *light* machine gun weighing 15-20 pounds. Nothing happened. During WWII some Marine Corps units jury-rigged Browning .30cal M2 aircraft machine guns with bipods and shoulder stocks at less than 25 pounds. The special liners for extended M60 barrel life were available for the Brownings over 12 years ago.

- **The Carbine**

The US M1-M2 Carbine embodied a pre-WWI sporting cartridge, the .32cal Winchester self-loader. Changed from semi-rim to rimless, from 165-grain to 110-grain bullet, at 1,900 foot seconds, the Carbine served from 1942 to 1958 as a much misunderstood 5-pound substitute rifle and shoulder-fired pistol. Actually it was an improved submachine gun, more complicated and less reliable due to its inertia-limited gas system, but several pounds lighter than the US Thompson .45cal and M3 guns. The Carbine was a "Chinese" copy of the M1 Garand except for a short-stroke (one-tenth inch) gas-impacted take-off. This device limited operating power, required extra mass in the operating slide, and so restricted mainspring power as to produce many failures to close and lock.

- **Submachine Guns**

Submachine guns appeared 40 years ago. These pistol-cartridged 8-10 pound, blow-back shoulder weapons gave short-range firepower with large-capacity magazines or drum. US models were the 1928 Navy and the 1938 Army Thompson, later M1, and the Army Ordnance 1943-44 M3 "grease gun."

- **The BAR**

Following the M1909 Benet-Mercie Automatic Rifle and WWI French-borrowed Chauchat Auto-Rifle, the US has had the 20-shot M1918 and M1918A2 Browning Automatic Rifle for 40 years. This 19.5-pound shoulder automatic will now be replaced by the M1-Garand type M15 (M14) with heavy barrel and bipod at some 11 pounds.

- **Foreign Weapons**

Lest any doubts arise as to small arms stalemates abroad, these are no less obvious there than here. The most accepted current automatic rifle is the Fabrique Nationale "FN" which, beneath its "strip-tease" disassembly features, is a "Chinese" copy of the Russian Tokarev M1938 semiautomatic rifle. The Russians dropped the Tokarev in 1944 and recently have adopted a new family of gas-operated carbine, rifle and machine gun. This merely modifies old weapon features and a German-copied 400-meter "Kurz" 7.62mm (Short) cartridge. Among others, the British have gone to the FN rifle over their 1900 SMLE bolt-action. Still they cling to the quarter-century-old 23-pound Bren (Czech Brno) and rehashed submachine gun. The small arms stalemate is just as bad abroad as in the US. Every so often there are press releases about new foreign guns. When you dig down deep these are chiefly clever, although sometimes not clever, copies of some ancient miscast musket.

Continued on page 30

last-ditch defense combat.

The Russians not only have Sputniks, they also have a holster pistol, shoulder-fired. We need its equal; we want a better one.

Now let's turn to our modern Tim Murphys.

As much as 150 years ago, fighters used "families" of fusils, consisting of basic long-barrel rifles and sawed-off carbines. Texas triggermen rode with .44-40 holstered revolvers and horse-scabbarded .44-40 lever-action rifles with the same "bullets" for both. Leonardo da Vinci may well have figured out a family of firearms.

Circa 1936-1940 I conceived of a more modern musket marriage: the Johnson 9.5-pound semiautomatic rifle and the Johnson 12.5-pound light machine gun (JAR as the Marines called it). The "Johnny gun," my favorite, married, in .30cal, features of the machine gun, automatic rifle, semiautomatic rifle and submachine gun. Used by Marine, Army and Allied combat forces from 1942 to 1945, this "gun" was cited in the *History of the First Special Service Force* by Burhans (Combat Forces Press), page 44: "Pound for pound it (the Johnson) was the most valuable armament the Force possessed."

Over a dozen years passed before the M14-M15 semiautomatic rifle and auto-rifle marriage was announced, paralleled by the widely publicized Belgian FN (T48) combination. Here you have a basic rifle which, with heavy barrel, bipod and full automatic control, becomes an auto-rifle to replace the 40-year-old BAR. As of 1957, there also came the M60 general-purpose air-cooled machine gun to replace the M1917-A1, M1919A4 and M1919A6 Browning machine guns.

The ultimate marriage we need is simply the logical combination of semiautomatic rifle, auto-rifle and machine gun, sprinkled with a dash of submachine gun and carbine. In the light of probable future tactics, one basic small arm can perform all these missions. Its accessories will be a bipod mount for all prone fire, and perhaps two sizes of cartridge containers: one of 30-50 rounds for assault, one of 50-100 rounds for defense.

With utmost reluctance I must

• One New Design

Of recent conventional small arms in NATO 7.62mm, the US-made Fairchild AR-10 discloses departure from ancient design with its gas-pipe action, front-locked, Johnson-type multi-lug bolt, plastic stock and aluminum magazine. Obviously too late to compete with the 8.5-pound M14-M15, the seven-pound Fairchild is under production in Holland. A few of its minor features may be US Ordnance-copied in the coming years, perhaps in the publicized T44E6.

• Weight Problem

Rifle weight, as in the US M14, has been reduced chiefly by whittling the barrel, boring more holes in the stock, and making lightening cuts in the body. Whereas the M1903 Springfield had about a three-pound barrel and the M1 rifle a 2.5-pound barrel, the M14 and FN have 1.7-pound barrels. Before WWI the Germans developed lightweight rifle barrels. I worked actively on feather-weight barrels over a dozen years ago, and made stress tests of light barrels some 20 years ago at the Massachusetts Institute of Technology. Because of its front-locked bolt system, the Fairchild AR-10 can utilize an aluminum receiver which is a major weight saver.

• Non-Standard "Standardization"

Small arm standardization for NATO gives further evidence of stalemate. About 12 years ago I discussed "Arms Standardization in *Ordnance* magazine. The prospects did not look very realistic then, and even less so since. As to small arms, there was no great problem picking the 9mm Parabellum (Luger) cartridge for pistols and submachine guns. Nearly all NATO nations had the 9mm anyway. But the US still retains the 1900 "anti-Moro" M1911 .45cal ammunition while paying lip-service to the Luger 9mm NATO. As for weapons, each nation is bound to have its own ideas and preferences. Moreover, the tactics, techniques and production potentials of the NATO nations vary widely.

• The NATO Cartridge

After many battles of bulletins and ballistics, the NATO 7.62mm cartridge was born, a marriage of US .30cal Model of 1906 and Savage .300cal of about 1920. Much-debated was the proposed British .280-inch, some .30 inches shorter than the 7.62mm ex-US 30T65E3. The .280 recalls issues of the US over a .276 cartridge presented circa 1927-1930 and shot down as unsuitable for rifle and for Browning 1917-19 machine guns by an immortal US Chief of Staff, Douglas MacArthur, about 1931. One of the many tin cans tied to the 7.62mm NATO tail has been a shopworn insistence that the 150-grain slug must leave the muzzle at 2,800 foot seconds velocity. Another has been hoopla over helmet penetration at 2,000 yards. This amounts to fighting today's wars half a century before yesterday. To and through WWI small arms targets ran to masses of men. Dispersion began in WWII and continues apace. The close-in "human sea" tactics of our foes in Korea came rarely, and in selected spots. Otherwise, they dug and hid with great care, crossing observed areas sometimes at individual intervals and distances of hundreds of yards. Worry if you wish about a hit in the helmet at 2,000 combat-condition yards. I can foresee more pressing problems from the bigger arms which have truly progressed. But so it goes in small arms—only arguments progress, while the hand tools of the fighting man stagnate. USMC

concede a rare need for full automatic fire control to be used at night and at closest range for bipod mount. Otherwise the weapon will fire, slow or fast, by semiautomatic discharge. The rule must be: more hits for less slugs. Hypermobility of any sort, surely by helicopter, demands logistic economy and fire discipline.

This weapon should have 10 major features:

1) Minimum size.

2) Weight (unloaded) of 6.5 to 7.5 pounds plus one pound for bipod.

3) Belted self-operated feed (no springs).

4) No functional extraction.

5) Complete enclosure of mechanism from the elements (dust, dirt, etc.)

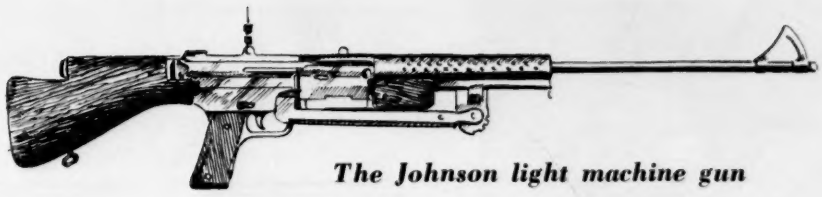
6) Optional telescope sight.

7) Bullets not over 80-100 grains; .224-.243 inch; 3,000-3,400 foot seconds; pressures not more than 42,000 pounds per square inch.

8) Maximum effective combat range by aimed shots, 350-400 yards; by fast semiautomatic bursts, 880 yards at most.

9) Easily changed barrel as a feature of longer total useful gun life (not for combat overheating necessarily). The barrel need not weigh over 1.5-1.8 pounds for any hypermobile missions. This is an important feature for future logistics and was combat-proven by Marines. According to direct postwar information from the late MajGen Robert T. Frederick, USA, and his staff, the Army First Special Service Force learned the same lesson with change-barrel Johnsons. A quick-change barrel will weigh less than 100 rounds. We change belts of ammunition; why not, when worn or fouled, change barrels too?

10) Burst-fire stability derived from bipod mount and fast semiautomatic rate of three or four shots per second—and by other means we won't discuss here.



The Johnson light machine gun

So much for the small arms. Now, how about the bullets?

For ballistics of such arms there must be a common sense, but bigamous marriage of hit-trajectory, lethality within predicted range, minimum combined (arms-ammunition) logistic load, and low recoil, giving more hits in both slow and fast semiautomatic fire.

Now you must compromise. Let's take a long look at a few inescapable kindergarten facts of life about bullets.

A large-diameter, short, lightweight bullet is easier to drive faster from the muzzle. *But,* such a short, stubby, light bullet poops out fast in the air. No soap.

A small-diameter, short, lightweight bullet is harder to drive faster from the muzzle. *But,* it performs much better for several hundred yards. Then, it too poops out because it is so light.

The good old caliber .30 boat-tail (172 grains) or 7.62mm NATO (about 150 grains and some with boat-tail) go long distances and lose less speed and energy doing so. But these weigh a lot, kick a lot, and are limited by the capacity of the rifleman beyond a few hundred yards.

So we come back to something of a sorrowful but sensible compromise. Smaller .224-.243 bullets of 50-100 grains save lots of weight and cost of "lead." They shoot flatter over real combat ranges, up to 300-400 yards. They smack into targets at 300 yards with quite high velocity, but they have lost from 30-40 per cent of their muzzle velocity at 300 yards. The good old .30 has lost only 20 per cent and less than 50 per cent at over 1,000-1,200 yards. Question: what will muzzle velocity do for you that far out? Against a massed target, plenty! Against dispersed, hypermobile targets, not much.

Therefore, let's look to a bullet of about .243-inch, of 80-100 grains, at 3,000-3,400 foot seconds for up to 880 yards maximum. Or, in extreme, a bullet of about .224-inch, of 50 grains, at 2,800-3,200 foot seconds up to 440 yards maximum. Pressures must not exceed an average of 42,000 pounds per square inch.

There would be much economy gained if both the small pistol-subrifle and the rifle-machine gun had the same barrel bore and bullet diameter. Bullet weight could vary.

To break the small arms stalemate we need accelerated evolution, not a revolution. For one set of fighters we need a combined pistol-subrifle, carried in a holster and fired, basically, from the shoulder to get sure hits at short ranges. For the Tim Murphys essential to a small war force-in-readiness we need an all-purpose machine gun-auto-rifle. Framed around the bullets just discussed, these needed weapons will aim, hit and kill at realistic combat ranges while lightening the logistic load. In the mobile war of the future we can only hope for "two rounds—two hits." We know for sure we cannot afford the sorry score of 10,000 rounds with "Maggy's drawers" waved 9,999 times. USMC

★ ★ ★ ★

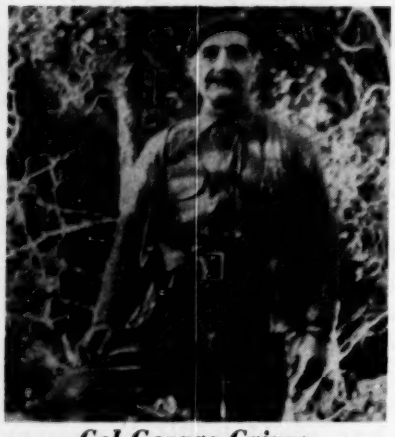
How's That Again?

THE SLIGHTEST TYPOGRAPHICAL ERROR or oversight by administrative personnel can be a source of undue embarrassment to the commanding officer. An FMF unit once issued TAD orders assigning several personnel to attend a base school. Since no change in normal living arrangements was involved, no per diem was authorized. A paragraph of the TAD orders referring to US Navy Travel Instructions put it this way: "Since you will not incur additional expenses or be required to make a change in your normal loving arrangements in the execution of these orders, per diem is not authorized."

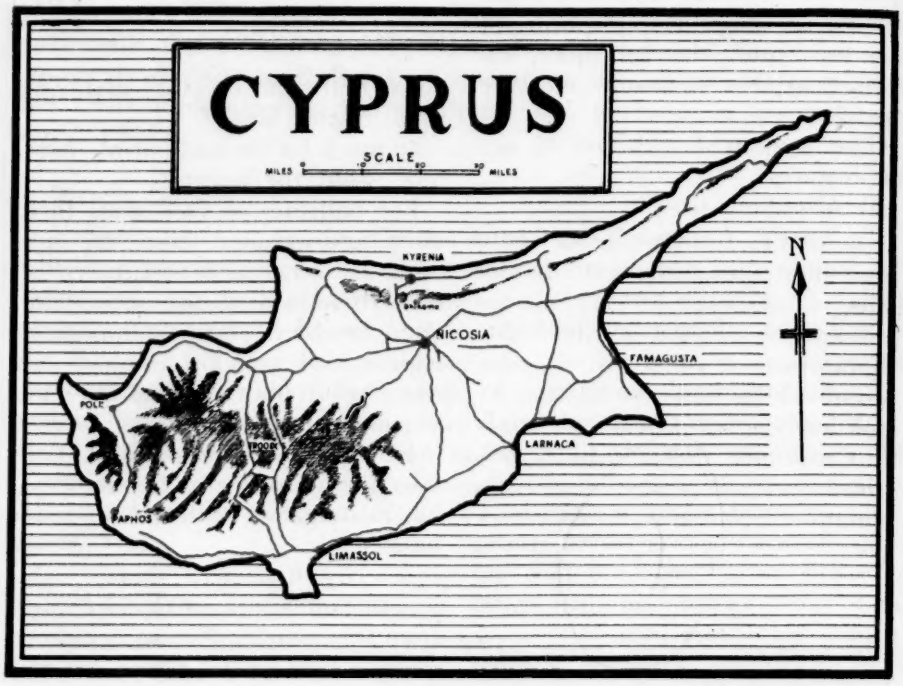
LtCol G. D. Bradley

Terror In...

Makharios the Third



Col George Grivas



This is the first of a two-part article written prior to the Cyprus settlement reached in the London Agreement of 19 February, 1959. Subsequently, Col Grivas left Cyprus for Greece; EOKA surrendered its arms; Greek Cypriots imprisoned by the British were released; emergency measures were relaxed. The Cypriots, Greeks and Turks are working with the British to prepare for establishment of an independent Republic of Cyprus, probably early in 1960.

PART I

by Maj B. I. S. Gourlay, OBE, MC, Royal Marines

IT WAS A VERY ORDINARY BI-cycle. Leaning there against the curved corrugated iron side of the canteen hut, the metal fastener on its old saddlebag glinting in the burning Cyprus sun, it looked as innocent as a child asleep, as much a natural part of the everyday scene as the trucks, jeeps and staff cars which stood parked within the barbed wire perimeter of the sprawling military camp.

It was lunchtime. A carefree group of British soldiers, chatting and laughing among themselves, moved across the parade towards the canteen in cheerful anticipation of the ice-cold beer which awaited them at the bar within. As they approached the hut they may perhaps have glanced at the bicycle, but only in the most cursory way; they hurried on and, joking still, passed through the welcoming doors—and into immediate oblivion.

For at that precise moment the flimsy hut was rent by a sudden explosion which shattered the sleepy midday stillness with a deafening roar and cast high up into the sky an ugly twisted assortment of timber and corrugated iron, newly painted furniture and gaily colored curtains.

Piece by piece the debris came wheeling back to earth and settled round the sorry tangled skeleton of the hut. With it all came the misshapen bits of what so recently had been a very ordinary bicycle. Of the saddle bag there was no trace.

Nor of the owner was there any sign. Could he have been one of the many builder's workmen in the camp? If so, he had, no doubt, long since passed unsuspected out of the exit gates under the eyes of the red-capped military police and even now, as the echoes of his handiwork reached his waiting ears, sat celebrating in some distant bar, his mission well performed.

Incidents such as this have filled the files of British security forces ever since 1 April 1955 when EOKA (National Organization of Cypriot Combatants) launched its campaign of intimidation, sabotage and murder with a series of island-wide bomb explosions. Surprising though it may seem to those unaware of the background to the unrest, the chief sufferers have been the Cypriots themselves. They have been subjected to terrible outrages: the following few examples indicate the lengths to which the terrorists have been prepared to go. An abbot has been shot dead in his own monastery and a sick woman in her hospital

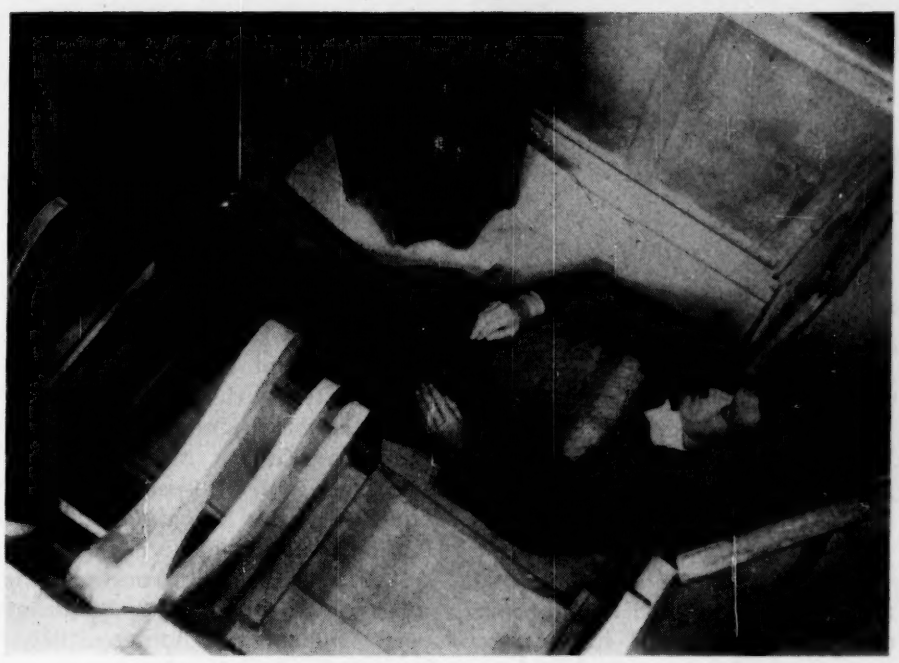
bed; a man has been murdered in church, during a service, before the eyes of his own children; bombs have been thrown indiscriminately into bars and cafés. The tale of horror is long and of almost endless variety.

The purpose of this article is to outline the nature of the problem which such terrorism presents to the security forces in general and the military ground forces in particular, and to describe some of the measures taken to solve it.

It will be immediately obvious that if the problem were a simple one, a solution would have been reached long before now. In truth it is far from simple. Terrorism the world over derives its impetus from political, racial or religious factors. In Cyprus, all three are present. We cannot, therefore, undertake an examination of the problem without taking these factors into account.

The most important one is probably that of politics. It does not lie within the scope of this article or the qualifications and province of the writer to discuss the rights or wrongs of British political action in Cyprus, but it will be necessary to give a brief account of political events in the island over the last hundred years in so far as they can help us to understand the background to unrest. This account, and indeed the whole article, makes only the most superficial reference to the point of view of the Turkish Cypriot, his reactions to terrorism and his relations with the Greek Cypriots. Unless it is appreciated that this is done deliberately in order to concentrate attention on terrorism itself, which is not of Turkish inspiration, an unbalanced impression will be formed that the Cyprus problem concerns the Greek Cypriots and the British alone.

The source of the unrest is the agitation for ENOSIS, or "Union with Greece." It is no new idea. Indeed, at the very outset of the British occupation of Cyprus in 1878, when Turkey ceded the island in return for British protection against Russia, the first High Commissioner was welcomed on his arrival by a local Bishop who is said to have expressed the hope that Great Britain would "help Cyprus, as it did the Ionian Islands, to be united with Mother Greece."



Murdered in church

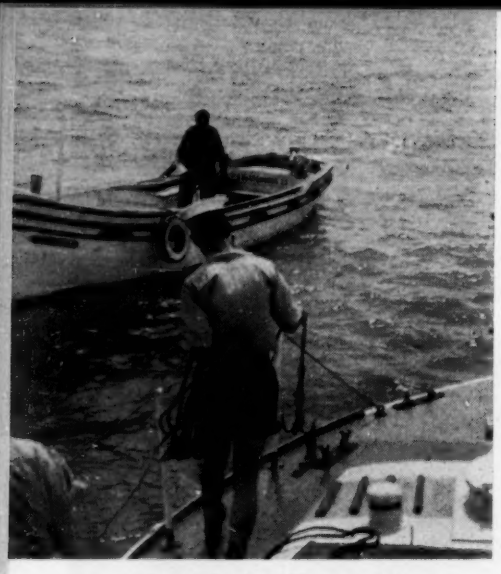
You will notice the significant fact that it was a local churchman who expressed this political hope; significant because today it is still the churchman who seeks to assume political leadership in the struggle for union with Greece. To the Western mind, the open association of the Church with a political party or creed is, to say the least, unorthodox. But we have to remember that the Eastern churches have long been a nursery for those aspiring not only to ecclesiastical power but to positions of authority in national affairs too.

In Ottoman times, the Greek Orthodox Church of Cyprus, led by its own Archbishop, was not permitted to play any part in politics, but it did enjoy a considerable say in the administration of the island. With the arrival of the British it handed over its administrative powers. Anxious not to lose temporal influence, it directed its activities more and more into politics, and advocated in its pulpits, up and down the island, the cause of ENOSIS.

The first major clash with British authority occurred in 1931 when the Bishop of Kitium issued a seditious manifesto and led the resignation of all the Orthodox members of the Cyprus Legislative Council. Riots ensued and Government House was burnt down. As a result, a number of leading politicians, including the Bishop, were deported. Thereafter things quieted down. The exiles were eventually allowed to return. But agitation for union with Greece had not been completely stifled; it lay dormant and remained so for nearly two decades.

And then in 1950 there came upon the scene a leader of the Greek community whose part in the struggle was soon to make his name world famous. That man was Makarios the Third, the present Archbishop and self-styled Ethnarch (National Leader). Youthful and intensely ambitious, a politician to his fingertips, he took up the leadership of the ENOSIS movement with a vigor and aggressiveness not matched by his predecessors.

In 1951, he brought Col George Grivas, a former Greek Army officer and post-war guerrilla leader, over from Greece for a visit, to advise him on the formation of a militant youth organization (PEON). From that moment on it could only be a matter of time before the decision was taken to use violence in furthering the campaign for ENOSIS. And in 1954 that decision was taken. Grivas returned to Cyprus to lead EOKA. He immediately set about building up a terrorist organization based on PEON which by now was an underground movement. On 1 April 1955,



Search for Terrorists

as we have seen, with full approval of the Ethnarch and his advisory council, the battle opened with coordinated bomb explosions all over the island, the Cyprus Broadcasting Station being one of the first Government buildings to suffer. Leaflets streamed from EOKA's secret duplicators in ever increasing numbers. "British Soldiers," they thundered, "choose: Peace or War—our friendships or our bullets!" They were signed, "EOKA—THE CHIEF—DIGHENIS."

In those early days of terrorism the real identity of the man who styled himself Dighenis was not positively known among the Cypriot people as a whole, or indeed in British official circles. The mystery surrounding the name undoubtedly added to its glamor. It soon came to exercise a powerful hold on the imagination of the Greek Cypriot community. By the time that it was known to be the nom de guerre of Col Grivas it not only commanded formidable respect throughout Cyprus but also the serious attention of politicians in London and Ankara. Dighenis is one of the names of the hero of a Byzantine epic "Dighenis the Borderer." This hero was endowed with supernatural powers. It is possible that Grivas chose this symbolic title to remind his followers of their Greek Byzantine heritage.

In Athens Grivas could confidently look for help, for here the movement for ENOSIS had been strongly supported by all political parties for some time before the outbreak of violence. The Greek Government under Field Marshal Papagos had formally raised the matter in 1954 in the United Nations. There were Greek nationals in the ranks of EOKA and Greek arms and explosives were smuggled into the island. Last, but by no means least, the State-controlled Athens radio gave continuous backing to the movement by open incitement to violence. Dighenis clearly did not lack for support from Greece.

What manner of man is this Dighenis, this Grivas? Undoubtedly his achievements to date mark him out as an outstandingly able guerrilla leader. In his sixties, he is a strongly built man of medium height, dark haired, swarthy and moustached, with a strong jaw and intense dark eyes. In character he is austere, self-disciplined, determined, energetic and ruthless to a degree; he did not shrink from ordering the placing of a time bomb in a transport aircraft which was scheduled to take off with British service families on board. The bomb, in the event, exploded prematurely. He is an excellent administrator. He is a master of disguise. Over and above all this, he is a fanatical champion of ENOSIS and in the words of the former governor of Cyprus, Field Marshal Harding, "Pathologically anti-communist."

Such is the man. What of the island he operates in? When he returned to Cyprus in 1954 with the task of organizing terrorism he was returning to his homeland, for he was born in a small town in the northeast corner of the island. He therefore was well aware of the nature of the ground over which his gangs were to operate and must have found it much to his liking. Indeed, the island is in many ways ideally suited to guerrilla activities. Its greatest length from East to West is 140 miles and from North to South, 60 miles. Its chief features are two mountain ranges and a large plain which lies between them. The Kyrenia range in the North runs along the length of the coast never more than a few miles wide, its sharp ridges rising to a height of about 3,000 feet. The Troodos Mountains to the South of the central plain are altogether more extensive

The check honored 'round the world

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and at their highest rise to 6,000 feet: with their large forested areas (the Cyprus state forests cover 19 per cent of the whole island), their steep slopes, impressively rugged terrain and isolated villages, they provide wonderful territory for guerrilla type operations.

The main towns lying in the central plain and along the coastal fringes are in their own way equally suited to terrorist operations. The visitor to Nicosia, the island capital, will notice how the houses crowd upon each other and how the narrow side streets meander on and lose themselves in countless cross-connecting lanes. These closely built-up areas with their Greek and Turkish quarters, which all the main towns share, provide the bomb thrower and killer with excellent cover for terrorist operations and equally excellent escape routes.

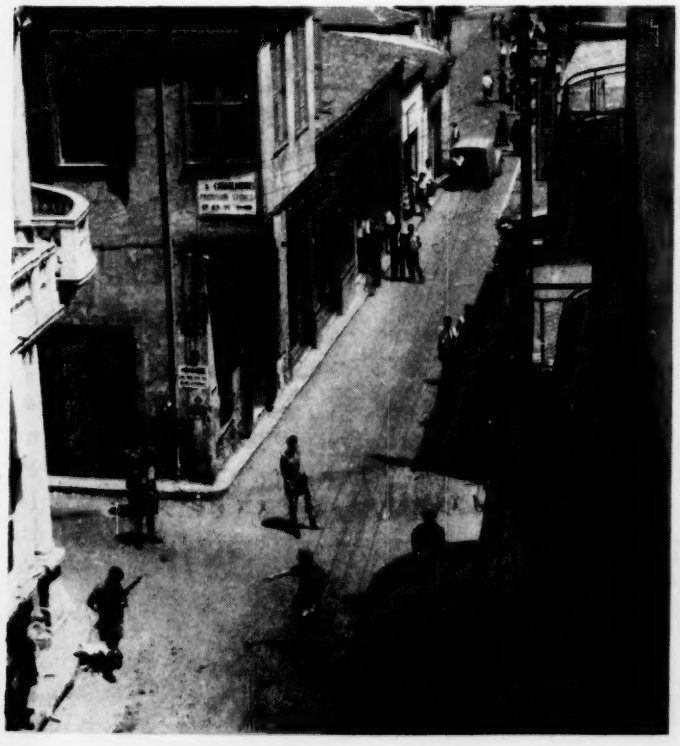
So much then for the scene of Grivas's operations. Now for his aims and methods. As we have already seen, his ultimate desire is to see Cyprus united with Greece. To help achieve this it might be thought that he is bent on seizing control in the island. This is not so: to be brief, it is impracticable for him to do so. Rather he aims to make the British position untenable by working on public opinion inside and outside Cyprus. He intends to keep the struggle for ENOSIS constantly before the world by violent action and to build up a powerful body of opinion which will sympathize with EOKA in its struggle against an oppressive administration. As for the Greek Cypriots, they must help him. If they will not help actively they must be terrified into silence. If they work against him they must be liquidated as traitors.

Whatever impression EOKA's activities may have had on outside opinion, there is no doubting their effect on the 420,000 Greek Cypriots living in the island. Bombs are thrown; no one hears them. Murders are committed in the crowded daytime; no one sees them. The prevailing atmosphere is one of fear and suspicion.

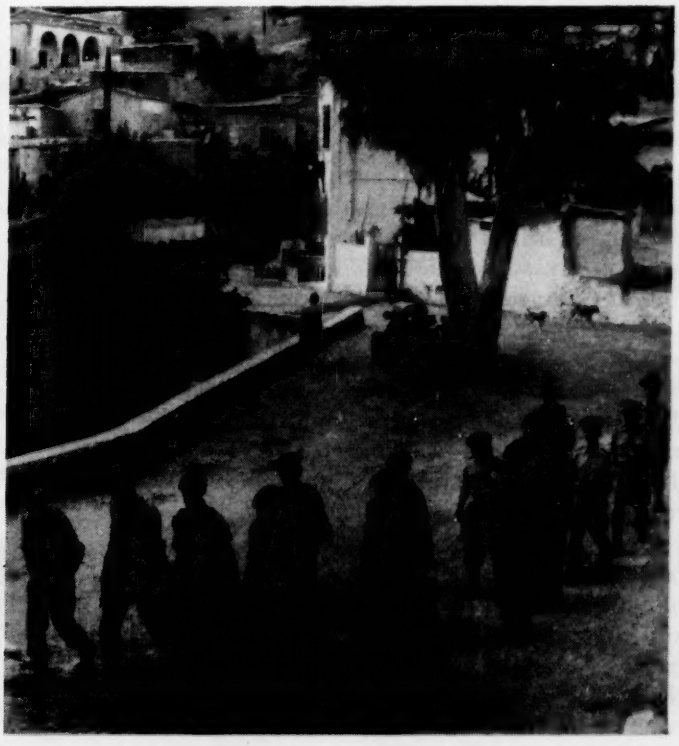
Grivas has not found it difficult to bring his compatriots to this sorry pass. Among all Greek Cypriots there is a strong sense of being tied to Greece; they are Greek in their way of life and thinking, Greek in what they eat and drink, Greek in their religion. Even their school teachers are, in many cases, Greek nationals trained in Greece. Admittedly, a strong case can be argued on political and racial grounds to show that the Greek Cypriot is not a true Greek. But the fact remains that he feels passionately that he is a Greek, and that is what matters. Certainly it is enough to make him well disposed in principle toward the movement for ENOSIS, even though he may, for the most part, abhor EOKA's brutal methods.

With the Turkish Cypriots things are different. Outnumbered by four to one, they bitterly oppose ENOSIS

Maj Gourlay was Operations Staff Officer with the 3d Commando Brigade on Cyprus while terrorist activities were going on. He wrote this article while instructing at the RM Officers' School, prompted by the interest shown by US Marine officer-students in the internal security problems on Cyprus. Maj Gourlay was commissioned in 1940 and saw sea service and duty with the RM Commandos during WWII. He has instructed at the Royal Naval College, Greenwich, and is a graduate of the British Army Staff College.



British street blockade



Foot patrol leaves for mountains

Rugged Cyprus hill country

which to them spells doom. They claim partition but accept partnership with the British. But if the British elect to leave Cyprus, they are prepared to go to extreme lengths to prevent the island, which Turkey ruled for hundreds of years and which is so close to the Turkish homeland, from falling into Greek hands. They are a proud and resolute people, more conscious today of their ties with Turkey than ever before. Their martial qualities command respect among Greek Cypriots and to some extent offset their numerical inferiority. They will never bow to Grivas.

EOKA's active forces probably do not exceed a few hundred in number. They are organized into districts. These in turn comprise a number of mountain, village and town groups or gangs.

The mountain gangs, each with an average strength of six men, comprise the hard core terrorists. They live in the hilly regions where ideal training areas and hideouts can be found. Charged with the more difficult military operations such as raids on police stations and military outposts, ambushes and missions of destruction, they rely on quick movement and on their hideouts to save them from the attention of the security forces.

The village gangs carry out tasks requiring less skill; supplying the mountain groups with food, arms and ammunition, passing on information, simple sabotage and the like. They may not remain formally constituted all the time, coming together occasionally in varying strengths for specific tasks. They receive their instructions through the district leader and unlike their more competent mountain partners who have precision weapons, are usually issued shotguns.

The town groups have a multiplicity of tasks. It is they who distribute the well known leaflets which announce EOKA's reactions to events of the day, record its threats and proclaim its truces. It is they who provoke the hysterics of demonstrating schoolchildren, who give asylum to members of the organization, and who deal in assassination.

All these groups, mountain, village and town, come under the strict control of Grivas himself. He concerns himself in their every activity and takes a personal interest in matters of the smallest detail. Vital to this control, which he exercises from a mobile command post, is an efficient and secure communications system. This he has built up with a chain of reliable couriers, both male and female.

So far we have painted a picture of Cyprus which is but half-finished. It is, for the most part, one of terrorism set against the background of a rugged island landscape. Two figures loom large upon the scene; the one a bearded churchman-politician, the other a swarthy guerrilla leader. We now require, to give the picture balance, to fill the foreground in and depict the story of counter-terrorism. This will be covered next month. USMC

ANNOUNCING

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IN PRIZES

CLASSIFICATIONS

Group I: **Field Grade Officers; Civilians**

Group II: **Company Grade Officers**

Group III: **Enlisted**

Group IV: **Members of the Platoon Leaders Class, Marine Corps Option NROTC, Officer Candidates Class and NAVCADs.**

(Prospective officers may enter Group IV if they have not received their commission at the time the essay is submitted.)

A total of $2,000.00 will be awarded to the winners of the Marine Corps Association's 1959 Prize Essay Contest. Essays will be judged in the 4 classifications, determined by the status of the contestant (active, inactive or retired member of the Armed Forces of the US and its Allies or as a civilian). A prize of $500.00 will be awarded to the winner in each group. If no essay entered in the contest is of a sufficiently high standard of excellence, no prize will be awarded in the classification concerned. In the event of a tie, awards may be prorated.

Material dealing with original thinking on military subjects is particularly desired. Historical essays are not solicited unless they can point up some development or far-reaching thought that affects us directly today.

In addition to the prizes awarded, one or more essays may receive "Honorable Mention" and be accepted for publication. Those not receiving a prize or honorable mention may be accepted for general publication in the GAZETTE. Compensation for such articles will be as adjudged by the Editorial Board.

General Rules

1. **Contestants may write on any subject of military interest but essays may not exceed 5,000 words and they must be original.**
2. **They must be typewritten, double-spaced, on paper approximately 8 x 11, and must be submitted in triplicate.**
3. **The name of the author shall not appear on the essay. Each essay heading shall contain an identifying phrase consisting of the last 5 words of the essay. This phrase shall appear:**
   a) **On the title page of the essay.**
   b) **On the outside of a sealed envelope containing the name (rank and serial number, if any) of the author.**
   c) **Above the name and address of the author, inside the identifying envelope.**
4. **Essays and identifying envelope must be mailed in a sealed envelope marked Prize Essay Contest Group (I, II, III, IV as appropriate) to the Secretary-Treasurer, Marine Corps Association, Box 1844, Quantico, Virginia.**
5. **Essays must be received by the Secretary-Treasurer prior to 1 October 1959.**

The copyright of any essay which appears in the GAZETTE is the property of the Marine Corps Association. No liability for the loss, return, judging or reports on any essay submitted will be assumed by the Marine Corps Association or the GAZETTE and the decisions of the Editorial Board will be final. No inquiries regarding essays will be answered until final judgment has been made.

DEADLINE 1 OCTOBER 1959

THE MARINE CORPS ASSOCIATION

Testing is scheduled to begin this month at MCLFDC, Quantico, on three Gyrodyne YRON-1 one-man helicopters.

The tests will evaluate the Gyrodyne Rotorcycle's use in small-unit reconnaissance, liaison and courier service, artillery observation, wire laying and other combat tasks.

The YRON-1 weighs 425 pounds, has a top speed of 72 mph and 60-mile range. It can carry a 265-pound load and climb 600 feet per minute.

The Rotorcycle was co-winner with the Hiller XROE-1 in a BuAer competition for a simple, compact, lightweight one-man helicopter.

Graduates from all three service academies reported for duty this summer with the Marine Corps.

The only member of the first graduating class of the Air Force Academy to enter a service other than the Air Force decided to become a Marine. He is 22-year-old 2dLt Robert E. Lowe of Auburn, Mass.

Seven members of the Class of 1959 at the US Military Academy took advantage of a new option to select Marine commissions. Not since 1814 had a West Pointer accepted a Marine Corps commission upon graduation.

Out of the 793-member class at the US Naval Academy, 57 accepted commissions in the Marine Corps. Among them was 23-year-old 2dLt Stanley W. Legro of Houston, Tex., whose 4-year academic average was the highest of the class.

Marine aviation units at NAF, Oppama, Japan, will get a new home early next year when the Marine Air Facility at Futema, Okinawa, is activated.

Formerly a US Air Force Base, Futema will provide facilities for one Marine helicopter group and an observation squadron.

A cargo hook has been introduced in the Marine Corps to speed up and increase safety in the "hook-up" operation in transporting equipment by helicopter.

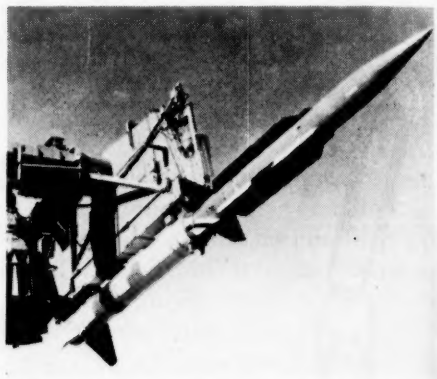
Designed and built by Marine CWO Irving F. White, the hook closes and locks automatically on a special bridle attached to the load. It is released electrically or manually from inside the helicopter.

An Italian 105mm pack howitzer is being tested by the British Army for its three-in-one capabilities as field gun, antitank gun and heavy mortar.

According to the British Army magazine, *SOLDIER*, the howitzer can be quickly disassembled to be air-lifted or carried by mule. Lowered into a crouching position on its adjustable legs, it becomes an antitank gun using special armor piercing ammunition. Raised to an angle of 70 degrees it can be fired in the role of a 4.2-inch mortar. As a field gun it has a range of 14,000 yards.

An advanced version of the Terrier, the Marine Corps' ground-to-air missile, is now in production by the Convair Division of General Dynamics Corporation.

Slated for use on the Navy's missile frigates and nuclear-powered



ships, the new Terrier doubles performance of present models of the missile.

For its mobile, land-based use of the Terrier, the Marine Corps is equipped with portable radars, launchers and loaders.

Delivery of the first of 180 new M-60 tanks will be made to the Army early in 1960.

Scheduled to replace the M-48 medium tank, the diesel-powered M-60 will be armed with a 105mm gun and operate with a 4-man crew.

Piasecki Aircraft Corporation has successfully flown a turbine-powered version of its VTOL aerial jeep.

Designated by the Army as the VZ-8P, the new version of the Sky-Car is lighter, faster, flies higher and has increased carrying capacity over the first prototype which was flown September 1958.

All major components — powerplant, rotors, control — are housed compactly in the VZ-8P's flat, low chassis.

DYNA-SOAR

Dyna-Soar (for dynamic soaring) is a joint project between the Air Force and the NASA, and is an attempt to solve the technical problems of manned flight in the sub-orbital regions. Advance knowledge on the project indicates how a boost-glide vehicle can operate from the outer fringes of the atmosphere where it can maneuver and be recovered undamaged. Studies show that by varying the original rocket boost, and thus the velocity, and with the control available to the pilot, the Dyna-Soar aircraft can circumnavigate the earth, followed by a normal and controlled landing. Boeing Airplane Company, one of the competing companies for the development contract for the complete boost-glide system, has delegated to RCA the responsibility for the development of important electronic components of Dyna-Soar.

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SUPPORT BY FIRE

PART TWO:

THE ARTILLERY QUESTION—AND SOME ANSWERS

By LtCol T. N. Greene

"The battle of Pork Chop was an artillery duel. The American guns won it. The relatively few riflemen who struggled to hold the outposts, doing it with their flesh when their weapons would no longer work, only validated the guns' claim on victory. . . . Nine artillery battalions . . . during the first 24 hours fired 37,655 rounds in defense of Arsenal, Dale and Pork Chop. The proportions were 9,823 rounds fired by the heavies and 27,832 by the light howitzers."

—BGen S. L. A. Marshall, PORK CHOP HILL, William Morrow and Co, 1956

ON THE DISPERSED BATTLEFIELD no Marine division can have the fires of nine artillery battalions to support it. Even without unit dispersion most of the force artillery troop list must reinforce one division's organic artillery and mortars to total this number of tubes.

On the other hand, Arsenal, Dale and Pork Chop could have been defended with perhaps three to six tactical-sized atomic weapons, plus the fires of some lesser amount of artillery. But Korea was not a nuclear war.

Equivalent and heavier fires could be provided by the potent naval gunfire and close air support normally available to a Marine division. But the battle of Pork Chop was fought at night when neither air nor naval gunfire can provide the "flash fires" used—a horseshoe-shaped barrage tucked tightly around the front and sides of an outpost ridge and maintained at the rate of six to twelve rounds per minute.

Clearly, then, the reorganized Marine division has not got the gear to fight another Pork Chop. But will the air-ground team be called upon to fight this kind of war?

These considerations are one major facet of the current cannon-cocker controversy, which as in battle, is making most of the noise in discussions over reorganization. Other major facets involve the 4.2" mortar-105mm howitzer hassle, organization for combat problems, communications and logistics questions, and, above all, the basic but overpowering question of exactly what weapon or weapons we need.

Any discussion of the points at issue in artillery immediately runs aground on the rocks and shoals of technicalities. Since the earliest days of gunpowder, gunners have been viewed with the same suspicion as witches in old Salem. Perhaps the best way to clear the air is by a series of questions and answers at the very considerable risk of oversimplification. Here goes!

Q. *What is the mission of artillery?*

A. To support the infantry by fire and to give depth to combat by attacking enemy rear installations such as artillery, reserves, and CPs.

Q. *Are mortars artillery?*

A. Yes. Artillery is divided into mortars, howitzers, and guns based on the ratio of tube length to tube diameter (caliber). Mortars are usually less than nine calibers long; guns run from 20 to as much as 70 calibers long; howitzers are in between.

Q. *Which is more accurate?*

A. The longest tube gives the greatest accuracy against a vertical target. However, the higher muzzle velocity results in more dispersion in range against a horizontal target.

Accordingly, accuracy against horizontal targets depends on the success of design compromises. It happens that the 8″ howitzer is the most accurate weapon we have.

Q. *Why do we have the three types of artillery?*

A. We need long-barrelled, thick-tubed guns to get long ranges. Howitzers give us medium range with a high angle of fall to clear masks. Mortars give us short ranges, high angle of fall, lightness, and a high rate of fire.

Q. *Then is it true that mortars can fire into places howitzers and guns cannot reach?*

A. No. Guns and howitzers can fire high angle fires with about the same trajectory as a mortar.

Q. *What are artillery maximum effective ranges?*

A. Artillery has no maximum *effective* range. It is effective anywhere it can shoot. Listed maximum range may be reduced several hundred yards by weather or terrain. Useful maximum ranges to remember are: 4.2″ mortar—6,000 yards; 105mm howitzer—12,000 yards; 155mm howitzer—16,000 yards; 8″ howitzer—18,000 yards; 155mm gun—25,000 yards; 4.5″ rocket—9,000 yards; 762mm rocket (Honest John)—27,500 yards. Minimum ranges may be important, too.

Q. *What are minimum ranges, then?*

A. For the 4.2″ mortar the round starts to tumble inside of 2,000 yards which leads to serious inaccuracy. It can be brought down closer, but risk increases. Howitzers and guns on flat ground can fire direct fire down to a few feet from the muzzle. If there is a hill (mask) in front of the position, it affects the guns the most depending on its height and distance. On the average, howitzers can fire easily on targets behind a normal mask at ranges of 1,000 to 2,000 yards and cover the near side of the mask with direct fire. Guns may have dead space out to 3,000-5,000 yards. The Honest John has a large minimum range caused entirely by the way the rocket functions.

Q. *Which round is more effective?*

A. Artillery rounds are basically cylinders so that increased diameter greatly increases volume, high explosive content and bursting radius. The 155mm and 8″ have the largest bursting radius. In the case of rounds of about the same size, such as the 105mm, 4.2″ mortar and 4.5″ rocket, the one with the thinnest wall scatters more lethal fragments. Both rockets and mortars have thin walls. However, we must consider three types of targets. Against troops or equipment in the open, a mortar hits nose down and fills a full circle with fragments. Gun, howitzer, or rocket rounds fired high angle do the same. Such a round fired normally is partly nose down and partly parallel to the deck, depending on range, charge, and terrain. About half the fragments may go up in the air and be wasted. This is true of either fuze quick or time fire. Now against troops or equipment dug in we must use time or VT fire. Here the mortar has little nose spray and wastes fragments. Guns, howitzers and rockets drive their fragments down into the trench, with the howitzer having the least fuzing-velocity error. Against material targets such as pillboxes, covered trenches, or tanks a thin-walled mortar or rocket round has no real penetrating power. Gun or howitzer rounds use either special rounds, such as HEAT, HEPT, or Concrete-Piercing. There is no simple answer to this question, and choice of the proper combination of weapon, charge, projectile, fuze, and method of fire to attack a target comprises an important part of the tactics of fire support.

Q. *How do the 4.2″ mortar and the 105mm howitzer compare in accuracy?*

A. The 105mm is better. The 4.2″ is unstable, has an awkward and inaccurate sighting method, and it's hard to change the propellant charges at night. Incidentally, the base plate cracks on frozen ground.

Q. *Can anything be done to improve the accuracy and ruggedness of the 4.2?*

A. Yes. The "HOWTAR" uses a 4.2″ tube on a bob-tailed 75mm pack howitzer carriage. This greatly helps sighting and stability. The short tube and difficulty of cutting charges will still leave some inaccuracy.

Q. *Why not just use the 75mm pack howitzer?*

A. The projectile just doesn't pack the punch we need, even though we gain range and accuracy. Also, it's not a regular supply item.

Q. *Is the 105mm howitzer really helicopter-transportable or not?*

A. The answer really is yes and no. The stock item can be lifted if taken apart. The stock item can be lightened by removing the 700-pound shield and using lighter wheels so that an HR2S could lift it. You'd need another lift for crew and ammunition and the piece would be difficult to handle on position without a prime mover. You can do it if you really need to, but it will not usually be worth the time and trouble.

Q. *Can the 105mm howitzer be modified to pack form?*

A. Such a model was developed in WWII, but was not completely satisfactory. The Marine Corps cannot afford to undertake development alone.

Q. *How about a longer range for the 4.2″ mortar or HOWTAR?*

A. Barely possible, not probable. The original design range was only 4,000 yards, so the present 6,000 yards is souped-up as far as tube and projectile wall thickness allow.

Q. *Then are we stuck with the 4.2″*

mortar or HOWTAR and the 105-mm howitzer until we get something better?

A. Looks that way.

Q. *Well, if we're stuck, how do we organize these two weapons?*

A. The first close support battalion of each division has three 8-tube mortar batteries. The second and third battalions have three 8-tube 105mm howitzer batteries each. Each also has eight mortars with which to train and arm one battery when required.

Q. *Doesn't the Intermediate Support Battalion have 105s, too?*

A. Yes, three 8-tube batteries.

Q. *Then what's the difference between close support and intermediate support battalions?*

A. The 4th (intermediate support) battalion has no extra mortars. Close support battalions have two SFCP each and also four FO teams per battery. The 4th battalion has no SFCP and only one FO/Ln team per battery. In the way of heavy gear, the 4th battalion carries an electronic meteorological system, three counter-mortar radars, and a radio relay terminal.

Q. *What are the main problems of this organization?*

A. A lot of Marines worry about the fact that this organization is badly outgunned in ranges, numbers of tubes, and weight of metal by any prospective enemy. This is true. However, Marine artillery is always task organized for combat by adding force artillery (which contains 105 and 155mm howitzers, 155mm guns, 8" howitzers, and Honest John). We also habitually depend on air and naval gunfire to carry part of the load. The real problems of this particular organization, as opposed to the general problem of supporting the dispersed formation by fire, are instability of the infantry-artillery team, dual armament, logistics, and communications.

Q. *Well?*

A. The infantry-artillery team consists of BLT and RLT FSCCs, FOs who work with and know certain company commanders, and also the SFCP. The integration of artillery and infantry CPs is as simple in principle as marriage, but the housekeeping details can lead to problems. Shifting the first close support battalion around to get mortars and howitzers in the proper places could lead to as many problems and hurt feelings as a mass divorce. The way a commander or his staff work with their FSCC is not really subject to standardization; it's as personal as a man's toothbrush.

Q. *Doesn't dual armament avoid that problem?*

A. Certainly, and creates a new Frankenstein monster. Do we carry a double set of weapons and ammunition around in our lean, trim, hard-hitting divisions? How can the battery learn to do fire direction, survey, fire support coordination—most of the things battalion used to do, and still train on two really dissimilar weapons?

Q. *Please, I'm supposed to be asking the questions. Do you have an answer?*

A. Yes, and it's a simple one. An artillery battery is broken by T/O into two parts: the firing battery consisting generally of the executive officer and his people plus two platoons, each with an FDC, with the other part being the battery headquarters, containing FDC, survey, and communications. The simple solution is this. First get rid of the platoon fire charts and get the platoon leader out of the tent and on his feet ensuring that service of the piece is properly conducted. Second, divide the battery headquarters between the battery commander and the exec, giving the two FDCs required to support displacement by platoons. Third, give all the close support battalions 105mm howitzers and the 4th battalion three 4.2" mortar batteries. Now if any RLT takes a chopper ride, the firing battery portion of the 4th battalion mortars can be exchanged for the appropriate 105 batteries, leaving the FSCC/FDC, FOs, and SFCP of the close support battery with the infantry they habitually support. This lays the problem of training in dual armament only on key officers, NCOs, and the relatively expert fire direction personnel—not on the newest hands of the weapons crews.

Q. *Wouldn't administration and property accounting be a headache for battery commanders?*

A. Definitely, but we fought WWII with execs running batteries while the battery CO was up front as liaison.

Q. *But what would the 4th battalion do when there are no helicopter operations?*

A. The complete mortar batteries would be attached to appropriate close support battalions. The headquarters would take control of attached force artillery batteries which require the survey, metro data, radio relay link, and staff administrative, intelligence, planning and fire direction, and logistic support available in the 4th battalion. The countermortar radars would be useful for electronic registration of force batteries, but should be either organic or attached to close support battalions for their primary role of finding enemy mortars.

Q. *Are we going to have force artillery batteries attached for the 4th battalion to control every time?*

A. There are five critical reasons why the division *must* have such artillery attached. They are:

1) Projectiles below 155mm are relatively ineffective for counterbattery.
2) Atomic delivery can be controlled by higher headquarters, but even more than conventional artillery requires "quick-fire" communications channels to respond properly.
3) Unit separation and enemy artillery ranges will require placement of force artillery in the division area—attachment is dictated by communications, logistics, local security, unit separation, and atomic warning considerations.
4) Unless the Landing Force consists of more than one division, no valid reason exists for the Landing Force to retain reserves of ground units or weapons.
5) Attachment to division does not preclude employment by the Landing Force Commander of such force-type artillery. His FSCC can simply direct the division FSCC to place all *available* fire on a given target. Division can do the same with RLT. Why worry about whether this is special staff authority between artillery officers, fire support coordinators, or what? A commander will avoid telling a subordinate what to do with units of his

command unless he has a compelling reason. The compelling reason of the modern doctrine is that it is better for a subordinate to be loaded, locked and communicating with a means higher authority sometimes uses than to have to try to get help over long distances when an emergency strikes.

Q. Then what about the Field Artillery Group Headquarters we have in force troops?

A. What about them? Seriously, we need one such headquarters for each simultaneous operation of two or more divisions that we intend to conduct. They serve a useful garrison function in coordinating training of force artillery batteries.

Q. *You mentioned logistics as a major problem. Doesn't the T/O say artillery battalions are capable of supply point distribution? What are you people doing with all those trucks?*

A. That touched a nerve. "All those trucks" amount to one each for each weapon or heavy piece of equipment, excluding water trailers, which we pick up in the second trip. The mortar battalion does not even have prime movers for each weapon. Battalion headquarters batteries have one 2½-ton 6 x 6 each, just enough for essential communications supply. Artillery regiment is just as far out of the supply business as infantry regiments, but no one attaches truck companies or light support companies to the artillery. Sure, the batteries can send their prime movers back for ammunition to the supply point. While they are gone you can bet the pieces won't be displacing down the road to support our fast-moving infantry. Incidentally, in one night of the Pork Chop battle the 48th Battalion fired about 6,500 rounds. This amounts to 195 tons or 78 2½-ton truck loads (prime movers have no trailers). This would keep a close support battalion's 25 trucks fairly busy and the howitzers immobilized a long time.

Specifically, the T/O says supply point distribution can be handled if the supply point is not too distant. I challenge anyone to disprove that statement, but it's a matter of some urgency that we make some realistic tests to find out for sure exactly how far is "too distant." In the meantime, we should consider whether more trucks, larger trucks, or more helicopters are most economical. Incidentally, aerial resupply by fixed-wing transport is quite a feasible way to handle such large weights, provided you offset the drop zone from the battery position.

Q. *Can you cover communications with less words?*

A. Yes. The close support battalions are all right if some of the many infantry radio relay channels are reserved for them. The 4th battalion and force artillery units have inadequate communications. The requirement is for both telephone and teletype systems to handle typical traffic. Proper equipment is in sight if properly allocated.

Q. *How about target acquisition?*

A. That will take an article of its own to discuss.

Q. *You mentioned that there are artillery problems inherent in support of the modern doctrine which have no particular relation to the current organization. What are they?*

A. Briefly there are four:

1) We need a weapon combining the best features of the howitzer and the mortar—specifically, range of 10,000-15,000 yards. helicopter transportable, highly-lethal shell, accuracy, flexible trajectory, short minimum range and high rate of fire.
2) We need compatible, helicopter-transportable atomic delivery systems. By compatible I mean they must be of use in a limited, non-atomic war, too. We cannot afford to carry, buy, or man two sets of systems.
3) We need a more precise fire direction system which will avoid time-and-ammunition-consuming registrations to mass fires successfully. Current research is finding out much more about interior and exterior ballistics and weather effects. An electronic or mechanical computer will be required to handle such a system — known as "predicted fires." Just for example, a phenomenon known as "tube memory" has been isolated. If you fire charge 1, then charge 7, the charge 7 will be short.

Q. *Please, let's not mention short rounds in public. Do I gather that something is being done about these problems?*

A. Yes, although obviously weapons developments are classified. The revised version of Field Manual 6-40, *Field Artillery Gunnery,* will contain some good preliminary data on the new ballistics considerations. It will also contain preliminary data on the fourth new area I was about to mention before you interrupted.

Q. *Sorry. What is it?*

A. This is lethality of various types of artillery attacks. Among the data are detailed discussions of results of test firing which show that, for example, firing five batteries TOT (arriving simultaneously) with one round each on a target in the open is many times as effective as firing one battery five rounds. It also shows relative effectiveness of various calibers.

Q. *But didn't you have this kind of information before in the field manuals?*

A. No, just a few rules of thumb and "experience factors." When we separated our firing batteries from each other more than battalions used to be spread, we had to start from scratch.

Q. *Well, as far as massing fires goes, I think everyone can see their place in a limited war. Frankly, though, won't massed fire targets be handled by nuclear weapons in an all-out or even nuclear war limited to tactical weapons?*

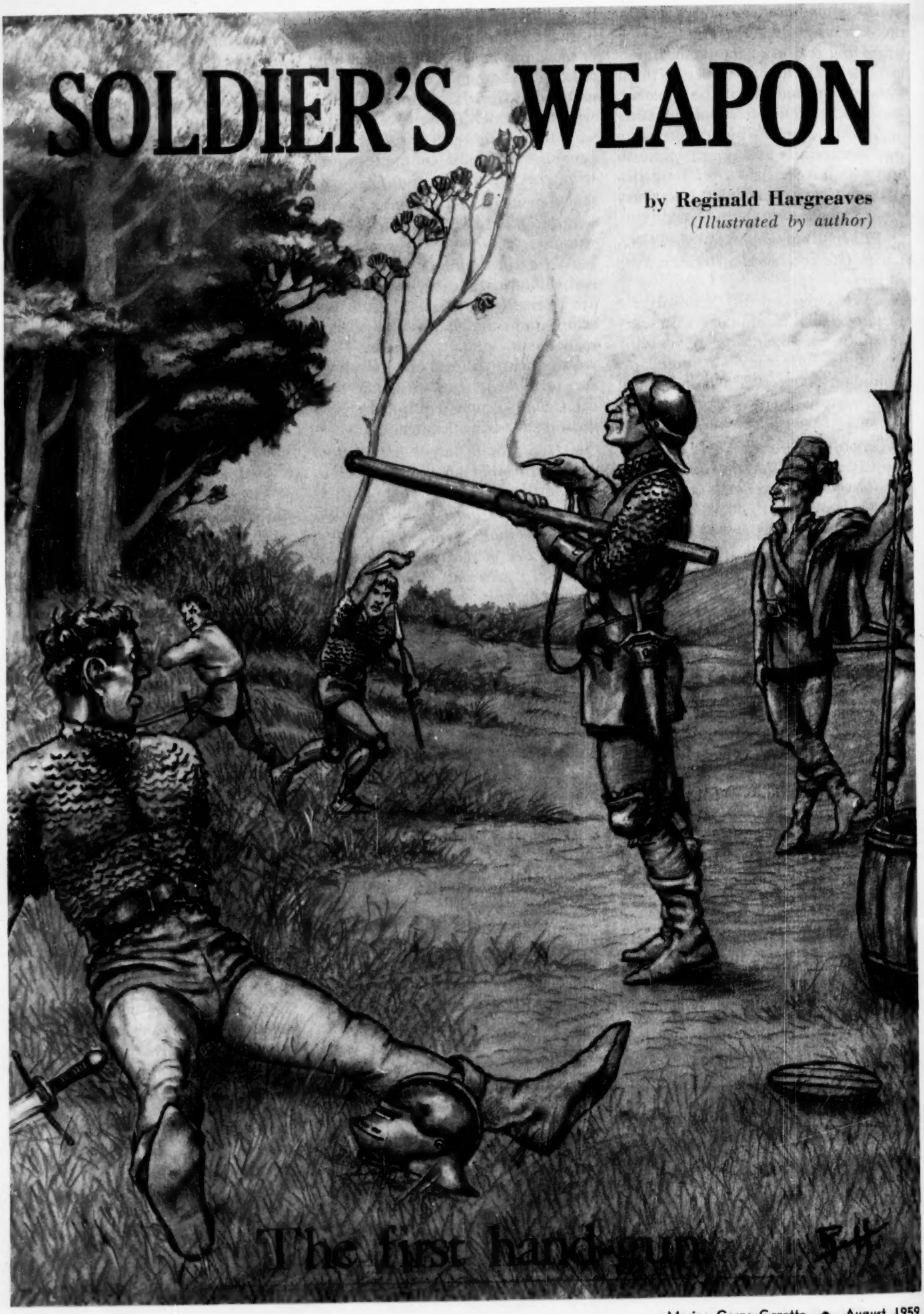
A. No more than a boxer with a good right hand will give up using his left jab. An atomic or helicopter-borne Sunday punch must be delivered carefully and precisely at exactly the right time and place. In the meantime, we must delay, befuddle and confuse the enemy, keep him off balance by conventional means. In a limited war we must be prepared to deliver a lethal punch without atomic assistance.

Q. *One last question, are you cannon-cockers still trying to build an empire?*

A. No. We don't intend or expect to win battles ourselves. We just want to be sure that when John Rifleman calls for fire to support his scheme of maneuver we'll be able to do the traditional artillery job: "Move, shoot, and communicate in order to support by fire." USMC

SOLDIER'S WEAPON

by **Reginald Hargreaves**
(Illustrated by author)



IT IS DIFFICULT TO REALIZE THAT the shock of amazement and alarm which swept the world with the release of the atomic bombs on Hiroshima and Nagasaki was no greater than that which attended the introduction of gunpowder into warfare. But the records make it plain that the initial employment of "this villainous saltpetre" in siege operations and battle-fighting evoked an outcry unmatched in the history of popular indignation. The powerful medieval Church denounced gunpowder's introduction onto the fields of Mars with all the resources of ecclesiastical anathema. Poets and writers, from Shakespeare and Ariosto to John Milton, inveighed in passionate terms against its wickedness. When first employed, veterans trained to fight according to the rules of chivalric combat took the most drastic steps to discourage its further use. Men as eminent and highly regarded as Prospero Colonna and Gian Paolo Vitelli would deliberately lop off the hands of captured gunners and the engineers who had exploded mines during a siege. Arquebusiers who had the misfortune to be taken prisoner, had their eyes put out as "murtherers and unchristian fighters."

Not only was gunpowder considered evil in itself, but it was deemed both unlawful and unseemly that men of gentle birth should be shot down from a distance by one of lowly origin. Indeed, a principal part of the complaint against the propellent was that it had proletarianized warfare. For the new missile weapon, even more than the cross-bow and the long bow, had "made all men alike tall." The scruffiest, undersized little hedge-hopper, with a firearm in his hand, was more than a match for the most magnificent knight in armor that ever bestrode a destrier. Warfare's scale of values perforce underwent wholesale revision, as did the whole ethical approach to it. "The idea that war is a trial of moral values by battle in which the Church referees for God, was replaced by a new conception: that war is a means towards a political end, in which the deciding factor is power." (*Armaments and History*, MajGen J. F. C. Fuller). It followed that the weapons that constituted the means to power—the cannon and the arquebus—were everywhere adopted, despite the general outcry against them. Nobody could afford to dispense with them, since no one could trust his potential opponent not to employ them when the time came, even when he had solemnly sworn to abjure them.

Gunpowder-charged weapons having been accepted, however grudgingly, into warfare's armory, it was soon realized that the hand-gun, being more portable and more easily brought into action than the cannon, was destined to be the soldier's weapon *par excellence.*

The first hand-guns of the later Middle Ages were virtually miniature cannon, mounted on long wooden stocks, which were held under the arm or, when carried by horsemen, against the breastplate. There is still in existence a bill dated 1374 which records that the sum of 13/s was paid for "fitting eight gonnes with helves after the fashion of pikes." These crude weapons were loaded by ramming a charge of powder down the barrel, with a bullet and a wad to keep it in place. A little well-mealed "corn powder"—finer in grain and more sensitive than that in the tube—was sprinkled on the touch-hole, which gave access to the charge. A smoldering slow-match pressed to this, sparked off the propellent and sped the missile on its somewhat erratic trajectory.

> *"The firearm is everything, the rest nothing."*
> NAPOLEON BONAPARTE

Since it was impossible to take aim properly with this elementary, clumsy hand-cannon, it was soon replaced by the arquebus, the earliest type of matchlock. This had a down-curving butt hollowed out to fit the shoulder; and being from 12 to 15 pounds in weight, its six-foot barrel required the support of a fork-shaped rest, thrust into the ground. The touch-hole, originally on top of the barrel, was eventually placed on the right-hand side, and a ledge, or priming-pan, was introduced to hold the fine corn powder. Direct application to the touch-hole by hand having proved highly dangerous, an indirect method of firing the piece was introduced. A pair of "jaws" held a length of slow-burning "match," and a long piece of metal was attached to the weapon by means of a pivot in the middle. Raising the rear end of this metal arm by the agency of a "trigger" had the effect of bringing down the forepart, with the match clenched in its "jaws," onto the pan; the priming powder was ignited and the charge fired. The piece had, in effect, been fitted with a lock; the "jaws," or match-holder, being termed "dragons," "dogs," or "serpentines," from the shape in which they were cast. It followed that by association the fine priming powder came in due course to be known as "serpentine."

A wooden scouring stick cleared the worst of the heavy deposit left in the barrel by the burning powder, and a proining-pin, or pricker, performed a similar office for the touch-hole; this joint operation always preceding any attempt to reload.

In all, it required 56 drill movements to fire, scour and reload the earlier type of matchlock. The rate of fire, therefore, was rarely more than 12 to 16 shots in 60 minutes, while the extreme range was little more than 100 yards.

Naturally enough, the musketeer was quite incapable of defending himself while engaged in the lengthy process of preparing the piece to fire a second round. He had in consequence to be guarded by serried ranks of pikemen, to prop off the enemy—particularly cavalry armed with pistols—until the firearm was ready to be discharged again. For quite a lengthy period the proportion was a minimum of five pikemen to every musketeer.

The Spanish troops were the earliest to introduce the musket into battle-fighting on any significant scale. But it was the Italian leader, Ferdinand Francesco d'Avalos, Marquis of Pescara (1490-1525) who first realized the value of giving his musketeers earthworks for their protection. In 1522, at the battle of Bicocca, he drew them up in four ranks in the shelter of a sunken road, massing his pikemen in rear of them. The Swiss mercenaries in French pay strode forward valiantly, eager to storm the position and qualify for the bounty that speedy victory would bring them. Holding their fire until the Swiss were within close range, Pescara's musketeers mowed them down like a sickle cutting swaths through a

field of standing corn; each echelon firing in turn and then retiring through the intervals in the second, third and fourth ranks, to reload and take its turn again, in due course, in the front line. The action at Bicocca offers the earliest example of controlled volley fire of which there is record; and it endowed Pescara with the right to be termed the father of modern infantry.

At Sesia, two years later, Pescara boldly maneuvered his well-drilled musketeers in the open, quite independently of the pikemen. There was no longer any question of the man with the hand-gun requiring protection while he reloaded. In firing by sections in succession, the musketeers amply provided for their own defense. A twelvemonth later, at Pavia, the match-lock-men's steady shooting and swiftly executed battle-drill movements set the pattern for the infantry fire-tactics of the future.

With the third decade of the 16th century, methods of warfare had very largely become universalized. The various types of fighting-men that had developed in relative isolation—the Swiss pikemen, English men-at-arms, Spanish swordsmen, German *landsknechts* and *reiters*, the Italian *condottieri*, and the heavy mounted *gens d'armes* of France—had evolved a mode of setting about their work which closely approximated a common doctrine of war. It was, however, left to Gustavus Adolphus of Sweden (1594-1632), adopting Pescara's principle of maneuvering his musketeers without any escort of pikemen, to deploy the squads in line instead of in depth. Starting with a battalia (the original medieval force, made up of heterogeneous *bandes* of differing size, had first been organized into *battalia* of standard strength, under their own Colonels, by the "Grand Captain," Gonzalo de Cordoba, in *circa* 1503) drawn up in ranks six deep, he eventually thinned it down to an array three deep; introducing volley firing by platoon in succession, in place of the earlier fire-and-file-off system. This appreciably steadied the whole formation; and the tactic itself anticipated the method of opposing line to column which reached its zenith in Wellington's Peninsular campaigns of 1808-14.

The adoption of more or less regularized battle-practice was accompanied by an effort to increase the musket's killing power, and at the same time to standardize the infantryman's arms and equipment.

Fillipo Strozzi, an ingenious Italian employed by the French, was the first to enlarge the bore of the match-lock to take a bigger bullet and heavier charge; handing over the actual workmanship to the skilled gunsmiths of Milan. So admirable was their craftsmanship that the weapons they fabricated could—and did—slay a man at 400 paces and a horse at 500 paces. These pieces were also sufficiently well balanced to enable the musketeer to dispense with the fork-tongued rest; a cutting down on equipment which added considerably to his comfort, no less than to his mobility.

Strozzi also introduced the practice of arming troops with weapons all of which were of similar bore; a measure which greatly simplified the problem of bullet molding and the provision of spare parts. Such pieces

The Flintlock

were known as arquebuses of calibre —a term which was soon shortened simply to caliber.

Weapon standardization was obviously a move in the right direction. Yet it had to wait a good many years to find general acceptance throughout Europe.

By now the musketeer himself was becoming something of a craftsman, with all a craftsman's whims and fancies with regard to the et ceteras of his equipment. Opinion differed sharply, for example, as to the best way of fabricating slow match, or link, as it was sometimes termed. Some veterans advocated soaking the long twist of tow or lint cord in an admixture of saltpetre and the lees of wine, boiled in verjuice; others favored drenching it in saltpetre and *aqua vitae,* boiled in lye.

The great thing was to ensure that the link smoldered evenly and not too quickly. For as every experienced musketeer kept his match burning all the time when an enemy was in close proximity, consumption was on a scale that was little short of the prodigal. It is recorded that a garrison of 1,500 men used up over five-hundredweight of link in 24 hours, without a shot being fired. Failure to observe this costly precaution, however, could easily bring about disaster. In the September of 1650, for example, the Scottish troops opposed to Cromwell's Parliamentary forces at Dunbar did not anticipate any assault during the hours of darkness. Orders were therefore given to douse all the slow-matches but those carried by the file-leaders. When the Roundheads put in a vigorous attack just before first light, the Scots, caught at a hopeless disadvantage, were quite unable to develop an adequate volume of fire, and suffered condign defeat.

When Robert Blake defended Taunton against the Royalist besiegers in 1645, "nothing was heard but thunder and nothing was seen but fire," the manifestations of so severe a tussle that, with all the proper link expended, "the cords were taken from the beds to provide match for the musketeers."

Priming powder was most carefully "sarsed and sifted with apothecary's quick pale. . . . being . . . first sprinkled with *aqua vitae* or strong claret wine." Some experts mixed a little finely powdered brimstone with their serpentine to "—liven it." By the same token, some veterans swore by the practice of encasing the bone head of the hickory scouring stick in soft linen, while others remained faithful to the older method of wrapping it about with a binding of horsehair.

The Arquebus

In action, bulk supplies of powder were brought to the firing line in budge barrels, which were upended and placed in close proximity to the rearmost rank. This was an obvious precautionary measure, but it put a heavy premium upon accidents. A man hastening to the powder casks to refill his flask would forget the slow-match smoldering in his hand and plunge both fists into the barrel — and he and his comrades nearby would be blown to smithereens.

To guard against this sort of catastrophe the custom arose of making up a number of charges, which were carried in cylinders of wood, tin or leather. These were known as patrons and were strung on a bandolier. Patrons, however, had the disadvantage of rattling against each other, so that their use ruled out any hope of putting in a silent attack under cover of darkness. At night, in any case, the glow of the many slow-matches inevitably betrayed the troops' position. In the West Indian expedition undertaken by the Parliamentary General, Robert Venables, his men frequently mistook the indigenous fireflies for the slow-matches of a surprise party of Spaniards, and wasted a lot of ammunition blazing away at a non-existent enemy.

Sometimes the spark from the link

". . . well defined notions of what they required."

of a rear-rank man would fire his weapon prematurely and wound a comrade in the front rank. Not infrequently a spark would set fire to one of the patrons in a man's bandolier, explode them all, and kill the wearer.

To guard the slow-match against self-betrayal, Frederick, Prince of Orange, devised a tin pipe about 12 inches long and perforated it with holes to admit the air, in which the smoldering link could be carried. The pipe also helped to protect it against its deadliest enemy—damp. This frequently rendered both powder and match unusable, and brought operations on both sides to a standstill. So late as the Battle of Brandywine (11 September, 1777) the British were unable to follow up the withdrawal of the Continental forces along the Chester road, owing to the fact that a sudden downpour had temporarily put all their powder out of action.

Many of the defects characteristic of the matchlock were remedied with the introduction of the firelock musket. This appeared in two forms—the wheel-lock and the snaphaunse or flintlock. The earlier wheel-lock was so termed because the spark which fired the charge was produced by the friction of a small wheel against a piece of iron pyrites; the wheel being set in motion by a strong spring, which was wound up by a key, more commonly termed a spanner. With the snaphaunse the spark which fired the priming was produced by the impact of a piece of flint on a small steel plate.

The snaphaunse had originally been designed as a light fowling piece, and was freely used by the peasantry throughout the Thirty Years' War (1618-48), to defend themselves against parties of plunderers; the greater accuracy of the weapon permitting of something approximating to real marksmanship. In addition, it was far cheaper to manufacture and more generally serviceable than the wheel-lock, which it very largely superseded.

Absolute accuracy of aim was still only a matter of chance; and it occurred to certain of the more adroit-minded gunsmiths that if the barrel of the firearm could be spirally grooved, far greater precision of aim could be ensured. At some time prior to 1525 both Gaspard Koellner of Vienna and Augustus Koetter of Nuremburg succeeded in perfecting weapons with rifled barrels. These firearms were utilized primarily for sporting purposes, and made their first appearance in human conflict during the course of the aforesaid Thirty Years' War. By 1663 the Bishop of Muenster's bodyguard was armed with a rifled firearm, projecting conical bullets of brass and copper, capable of piercing body-armor at ranges up to 300 yards. By 1680 the six troops of the British Household Cavalry had been furnished with eight rifled carbines apiece. In 1689 the English gunsmith, Willmore, produced a breech-loading rifle, with eight grooves making one complete turn in six feet. The trigger-guard was designed as a screw lever, which was turned round and round until it could be removed to expose a loading recess. The great drawback with this particular weapon was that it had to be turned upside down before it could be loaded.

One serious defect with all contemporary firearms was that of the escaping gases accompanying their discharge; although this was undergoing gradual remedy by virtue of the greater precision achieved in the manufacture of their mechanism. Such refinements were not available, of course, for the ordinary soldier. His weapon was the run-of-the-mill flintlock; in the case of the British redcoat "the Queen's arm"—the embryo of the "Brown Bess" that was to hold the field for a further century and a half.

A speedier rate of fire was attainable with the flintlock than had ever been possible with the matchlock. And when the ring bayonet replaced

the pike, it was clear past any peradventure that infantry tactics would constitute the dominant factor on all the battlefields of the future. (Plug bayonets, rammed down the musket barrel and rather a hindrance than a help, first made their appearance in 1647. They were superseded by those ring bayonets first mentioned by Puységur in 1678; the earliest socket bayonet being tried out in 1724.)

In North America, in the early part of the 18th century, the westward trend of the population created an ever-extending border, whereon the rights of settlement were in constant dispute both with the indigenous Redskin and the French, swarming down from Canada. Men went armed as a matter of course; and the demands of both hunting and warfare called for something more accurate and portable than the rather clumsy weapons introduced into the country by the "Pennsylvania Dutch" and the Palatine Swiss. There were skilled gunsmiths in the Conestoga country, and in consultation with the frontiersmen who would have the wielding of them, they ultimately evolved a flintlock of new design. It was a long, slender, well-balanced piece, with a graceful stock and a barrel rifled for round bullets at an average of 45 to the pound. Weighing about ten pounds, the bore was slightly bigger than the bullet, and was well slushed with tallow; the ball itself being placed in the center of a piece of a greased buckskin. This patch reduced the windage, minimized the escape of gases, and by filling the grooves of the rifling imparted a spinning motion to the missile. This endowed the weapon with great accuracy within its range, which was deadly up to 100 yards, and still uncannily on the target at 300. Termed the Kentucky or Frontier rifle, it had many features in common with the weapon first manufactured at Lancaster, Pennsylvania, in 1739. Marked dissimilarities were to be found in some of these pieces, however, owing to the embodiment of certain novel features in their construction, included at the behest of frontiersmen with extremely well defined notions of what they required of a firearm.

It was with this admirable Frontier rifle that the bulk of the men of such formations as Daniel Morgan's outfit were equipped when the War of Independence called the Colonists to arms. The general run of the Continental Line, however, like many of the Militia regiments, were issued with the French "Charleville" musket, a piece in no way superior to the "Brown Bess." On both sides the old wooden scouring stick had been replaced by the iron ramrod devised by Prince Leopold of Anhalt-Dessau, and introduced into his army by Frederick the Great in 1740.

The Colonial riflemen had very clearly demonstrated their skill as early as the disastrous Braddock expedition of 1755. A mixed force of British redcoats and Colonial Militia having been ambushed by the French and their Redskin allies, "the Virginians alone, who were accustomed to such work, kept their presence of mind, and, taking shelter behind the trees, answered the Indian fire in the Indian fashion." So effective was their marksmanship that Dumas, on whom the leadership of the Franco-Indian force had devolved, considered the day already lost. "I ad-

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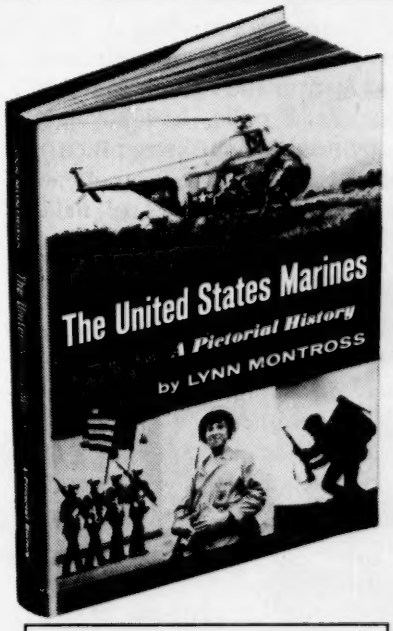

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vanced," he subsequently confessed, "with the assurance that comes of despair." But when some of the redcoats sought to emulate their Virginian comrades-in-arms, "Braddock would have none of it. Such fighting was not prescribed in the drill books nor familiar on the battlefields of Europe, and he would tolerate no such disregard of order and discipline. Raging and cursing, he drove British and Virginians alike back to their fellows with his sword." The chance to assimilate the methods most appropriate to "bushwhacking" was wantonly thrown away; and the outcome of the subsequent War of Independence was clearly foreshadowed on the banks of the Monongahela.

The British entered the struggle which started on the village green at Lexington, armed with the "Brown Bess." This 14-pound flintlock had a 39-inch barrel, throwing a spherical ball of 14 to the pound, which would not carry with even approximate accuracy for more than 100 yards, and whose effective range was barely 300 yards. Self-confident riflemen had a phrase "As random as a common musket," and in the main the sneer was justified.

During the Seven Years' War (1756-63) the Comte de Guibert, Chief of Staff to the French Marshal the Duc de Broglie, had strongly urged the need for musketry practice against war targets, to encourage accuracy and ensure control of field-firing by battalions. But little had come of the suggestion. With the British, "Brown Bess" was no friend to precision of aim, while any attempt to speed up the rate of fire was definitely discouraged. "There is no need," pronounced Gen James Wolfe, the victor of Quebec, "for firing very fast; a cool, well-levelled fire, with the piece carefully loaded, is more destructive and formidable than the quickest fire in confusion."

Volley firing by platoons in succession, against opponents in close order, and at short range, was the principle by which the British were content to abide. "Don't fire," Lord Stair had counselled at the Battle of Dettingen in 1743, "till you can see the whites of their eyes;" and with the redcoats stolidly waiting until their antagonists were almost upon them before they pulled trigger, the slaughter from the crashing volleys had been devastating.

This variety of controlled fire had undoubtedly proved effective on the battlefields of Europe, even with a rate of discharge that rarely exceeded two rounds a minute, and a volume of fire that was badly reduced by the many misfires, which frequently amounted to as many as four in twelve rounds. Flints were an additional source of trouble, since they wore out very quickly, and took time and a certain elementary skill to replace. Indeed, unless the very best black variety could be procured, it became necessary to renew them every 20 rounds. In effect, although a serviceable piece against opponents no better armed, "Brown Bess" was scarcely the firearm to compete successfully with a weapon of precision like the Kentucky rifle, any more than close order was the ideal method of maneuvering troops against marksmen skilled in taking every advantage of natural cover.

A man armed with a rifle, bayonet and ammunition is a complete military unit . . .

This was demonstrated past all question at Bunker Hill, where the British clambered up the slope in close order, against skilled marksmen protected by entrenchments. Guided by Israel Putnam's sage advice to "Aim at the handsome waistcoats," sharpshooters picked off the British officers, conspicuous in their gold-laced vests and glittering gorgets, with demoralizing accuracy. One particularly expert sniper, working with a loader who handed him a fresh weapon the moment he had fired the piece at his shoulder, was reputed to have slain or wounded 20 officers to his own account. By the time that Gen Howe had forced home his third and last assault at the point of the bayonet, out of the 2,500 redcoats engaged, 19 officers and 207 men had been killed and 70 officers and 750 other ranks had fallen wounded—a toll entirely attributable to unsupported musketry.

The British did far better in such formal encounter-battles as the Long Island engagement, White Plains and Brandywine. But in such firefights as Bennington and Bemis Heights, the Colonial forces, with their superior musketry and skill in taking every advantage of natural cover, easily had the best of it.

The weapon which might have restored the balance in the redcoats' favor was the rifle devised by the young Scottish officer, Maj Patrick Ferguson. This revolutionary firearm was 50 inches in length, weighed seven and a half pounds, and was provided with a moveable backsight for ranges of from 100 to 500 yards. The breech was closed by a vertical screw-plug, which could be wound down to give access to a loading chamber. During an official test of the weapon at Woolwich, the inventor had maintained a rate of fire of seven aimed shots a minute. Moreover, he had put five balls into the bull's-eye and four more within an inch or so of it, at a range of 100 yards. At the same time he had demonstrated his ability to load and fire from the prone position, a feat hitherto regarded as impossible.

Ferguson arrived in full expectation that his letter of recommendation to the Commander-in-Chief, "Good-natured Billy" Howe, would enable him to raise and train a formidable body of riflemen, armed with the new weapon. But his hopes were speedily dashed. For on the subject of marksmanship and light infantry tactics — in which he considered himself an expert — Howe exhibited anything but his wonted good nature. Sheer professional jealousy impelled him to put a damper on the young Scotsman's aspirations at every turn. Ferguson's corps of riflemen never amounted to more than a handful, while the manufacture of his admirable firearm was on so limited a scale that its employment could bring no influence to bear on the course of military events. With Ferguson's death in action at the battle of King's Mountain, in the October of 1780, nothing further was heard of a weapon which anticipated that eventually adopted by the British Regular rifle formations by nearly 20 years.

That extremely tough Muscovite veteran, Alexander Vasilievitch Suvorov, was a great believer in realistic battle-drill. He invariably employed the contemporary equivalent of thunder-flashes, artillery fire "with plenty of smoke," live rounds discharged over the infantrymen's

heads, and ample blank ammunition to permit of practice in fire-control.

The Napoleonic army, on the other hand, although possessing many corps of *voltiguers* and *chasseurs à pied* to act as scouts and sharpshooters, altogether neglected to encourage a high standard of marksmanship amongst them. For the Emperor's commendation of the value of musketry practice was no more than a characteristic exhibition of lip service to an ideal to which his troops were never encouraged to attain. Moreover, if the standard of marksmanship was low with the picked men of the *voltiguers* and *chasseurs à pied,* that achieved by the ordinary Infantry of the Line was negligible. For practically no musketry instruction or firing at the mark was included in the recruit's training. On the eve of Napoleon's passage of the St. Bernard Pass in 1800, Berthier, his Chief of Staff, gave orders that all the newly joined men should "fire a few shots, so that they may know which eye to aim with, and how to load their muskets." Four years later, with the bored and dissipated *Armée d'Angleterre* fretfully awaiting the word—which never came!—for the invasion of England, there was only an occasional exercise in "firing at the mark." Musketry practice, in effect, was introduced to break the monotony of embarkation exercises and swimming lessons—"So that *some* of them can get back again," as one cynical onlooker commented!—but it did little to improve the general low standard of marksmanship. Napoleon recognized the inability of his infantry to come out on top in a fire-fight, indeed, by supporting it by what he himself confessed to be an entirely disproportionate amount of artillery. It never seemed to occur to him that it would have been far less costly in life and treasure had his "footsloggers" been taught to shoot.

In the "invasion camps" on the English side of the Channel, particularly at Shorncliffe, where Sir John Moore was busy training those formations destined to win immortality as the Light Division, the proper handling of the firearm received considerably more attention. For although the mass of the Infantry of the Line was still equipped with the smooth-bore "Brown Bess," the green-jacketed men of the new Rifle Corps were busy familiarizing themselves with the characteristics of the weapon evolved by Ezekial Baker. This rifled firearm, weighing nine and a half pounds, had a seven-grooved barrel thirty inches in length, with a caliber of .652, the lock, of course, being a flintlock. The butt of the piece—like that of the Kentucky rifle—had a brass plate let in which concealed a chamber containing the greased patches that were rammed home with every bullet.

In the subsequent campaign on the Iberian peninsula, the Baker rifle proved an extremely useful weapon for the skirmishers and scouts. But the real work was still performed by the trusty old "Brown Bess" with fire control developed as a fine art. Drawn up in line, with a steadiness that nothing was allowed to disturb, the British redcoats poured their perfectly timed volleys into the advancing Gallic columns 'til, in Wellington's own words, "the head was utterly destroyed, and the

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tail started to fray out like rope." Then the bayonets were whipped on and the job was finished off with the cold steel.

Steadiness, controlled fire, and the wavering issue determined at the point of the bayonet—in that combination of missile and shock action may be found the perennial recipe for victory.

The Baker was superseded by the Brunswick rifle devised by Capt Berners of the Jaeger Regiment in the Brunswicker Army. It was a weapon characterized by a larger bore than its immediate predecessor, and fired a special bullet with a belt about its middle to fit the two deep, rounded grooves that took one complete turn in the length of the barrel.

Paper cartridges, to contain ball and charge, had been in use since the days of Gustavus Adolphus; but speed of fire was still handicapped by the necessity to force home the charges with either a mallet or ramrod.

This drawback was offset in 1807 by Alexander Forsyth's invention of the percussion cap, although the device was not generally adopted for military purposes until 1820. It was not until 1842 that the British Army completed the conversion of its firearms to the new method of touching off a charge. The Brunswick, and the Jacob rifle which superseded it, were still comparative rarities.

In 1847 Capt Claude Minié, of the Chasseurs d' Orleans, carried out successful experiments with a muzzle-loading pointed bullet containing an iron cup in its hollowed-out base. On being fired, the gases forced the cup into the bullet, causing the sides to spread out to fill the grooves of the rifle, to bring about a virtually gas-tight fit. By 1849 Minié's own regiment had been equipped with a rifle designed to take this type of bullet; and in 1851 the British Government acquired the right to make use of the patent, for which privilege Minié was paid £20,000.

The Minié rifle was issued to a certain number of regiments in the Crimea; and with some modifications became the Enfield rifle of 1856. This weapon, with fixed bayonet, weighed 9 pounds, 3 ounces and had a barrel of 3 feet, 3 inches, and a caliber of .577, sighted up to 800 yards. That it was a remarkably accurate firearm was demonstrated to the full when in 1860 a full-size target was set up representing a nine-pounder with horse-team and gunners. Firing at 800 yards, a party of 30 volunteers, in five minutes' shooting, hit every man and horse several times.

Thence onwards the "battle of the rifling" inspired the experts to ever-fresh exertions. Whitworth, Westley-Richards, Lancaster and Wilkinson, all put forward suggestions to achieve the perfect bore; and experiments to produce a reliable and serviceable breech-loading mechanism were equally untiring. The Prussians adopted the breech-loading "Needle gun" in 1848. The American Sharps rifle, with a falling breech actuated by the trigger-guard which served the purpose of a lever, appeared in 1862. The Terry, the Green, the Belgian *Mont Storm,* all had their advocates. But eventually the palm went to the breech mechanism devised by the mechanically-minded Dutch wine merchant, Jacob Snider.

The Snider weapon, however, was at best a makeshift, and was supplanted by the firearm in which the breech mechanism devised by Friederich von Martini — and based upon that of the American inventor, Peabody—was combined with the barrel perfected by the Edinburgh gunsmith, Alexander Henry. This piece had the additional advantage of taking the solid drawn-brass cartridge evolved by Col Boxer. Its 'kick,' however, was the terror of every unfortunate recruit to make its acquaintance. The Martini's real defect, however, was that if the cartridge was not thrust right home, the block could not be made to close; while the method of extracting the spent cartridge was unreliable. Nonetheless, a hammerless gun had been produced and found to work.

". . . still armed with flintlocks."

At the outbreak of the War Between the States, according to the *Times* correspondent, W. H. Russell, many of the volunteers in North Carolina presented themselves still armed with flintlocks and smoothbore muskets. But the muzzle-loading Springfields were the weapons most in evidence until the final year of the struggle, when the Union troops were armed with the Enfield repeating rifle. Even with this excellent firearm, not all the American linesmen could boast the marksmanship of a Daniel Morgan. According to the official records, so far as the Stone's River fight was concerned, it was calculated that 145 rounds of Federal musketry were required to hit one man!

The Spencer seven-shot carbine was a direct outcome of experience gained in the Civil War; and a few years later the Henry, Remington and Winchester firearms were playing their part in the incessant border warfare against marauding Redskins.

In the war of 1870-71 the Prussian "Needle gun"—far from gas tight until the brass cartridge was adopted—found a formidable rival in the French *chassepot,* which also made use of a coiled spring to thrust forward an iron pin to detonate the fulminate currently in use. Neither weapon, however, approached the standard achieved by the three-groove Enfield, a rifle capable of really accurate fire. Nonetheless in 1889 this piece yielded pride of place to the Lee-Metford magazine rifle, with seven grooves and a bore of .303. Of this the Mark III, as issued to the British Army, was as strong, accurate and handy a weapon as any soldier could desire.

The British were at the receiving end throughout the demonstration of precision-shooting at speeds which characterized the South African War of 1899-1902. For the Boer, armed with his trusty Mauser, had learned his marksmanship in the hard school of the hunter, where every shot must tell, otherwise there will be nothing to put in the cooking pot. It was a revelation of musketry practice that was by no means lost on its victims. In the years between the Peace of Vereeniging and the outbreak of hostilities in 1914, musketry occupied the thoughts of the British Army both sleeping and waking, and more time was devoted to its cultivation than to any other element of training.

In the outcome, so high a standard was attained by the individual rifleman that in the first clash between the Kaiser's forces and the B.E.F. nothing would convince the Germans that they were not up against massed machine gun fire. Actually, the allotment of these weapons was on the scale of four to a battalion. It was the aimed rapid fire of the ordinary rank and file that had created the illusion.

The later stages of the war were notable for the attempts to produce a "multiple" weapon of greater reliability than the Maxim and the Gatling. The Lewis gun was the primary outcome of these endeavors, a device which must be regarded as the forefather of the Brens, Brownings, Schmeissers, Vickers, Katushas, Stens, Bazookas, machine gun pistols and "Tommy guns" that were to follow.

The advantages of automatic fire are obvious. Its disadvantages are not perhaps so generally apprehended. To begin with, the fire-production of automatic weapons is so immense that the old ideal of "making every shot count" receives virtually no consideration. Ammunition is wasted with positively prodigal abandon. In Korea, for example, a soldier armed with an automatic, having located a sniper, triggered off a sustained burst, spraying the whole area with bullets. "Reckon I put 60 into it," he exclaimed with enormous satisfaction; "I guess the bastard must be dead alright." One aimed round would have been enough.

And now we are threatened with a weapon with a liquid propellant, to fire a hundred rounds without reloading. At this rate of discharge—and with the state of jitters that uncontrolled automatic fire seems inevitably to induce — how many of the missiles would do more than punch holes in the inoffensive air?

"Horde warfare"—the most likely type of conflict to confront the West—with its incessant demand for "battle shooting," renders the use of automatic weapons a *sine qua non.* But just loosing off is not shooting. Moreover, such inconsequent expenditure of ammunition is not only a reprehensible waste of the taxpayers' money, but the transportation of the stupendous number of rounds involved imposes an unbearable and quite unnecessary strain on the whole logistics system.

The "trigger-happy" soldier is a bigger menace to his own supply lines than to the enemy at whom he blazes away so indiscriminately. The inescapability of employing automatic weapons to produce the necessary volume of fire should not preclude control of the fire-pattern—or encourage the neglect of the riffleman *pur et simple.*

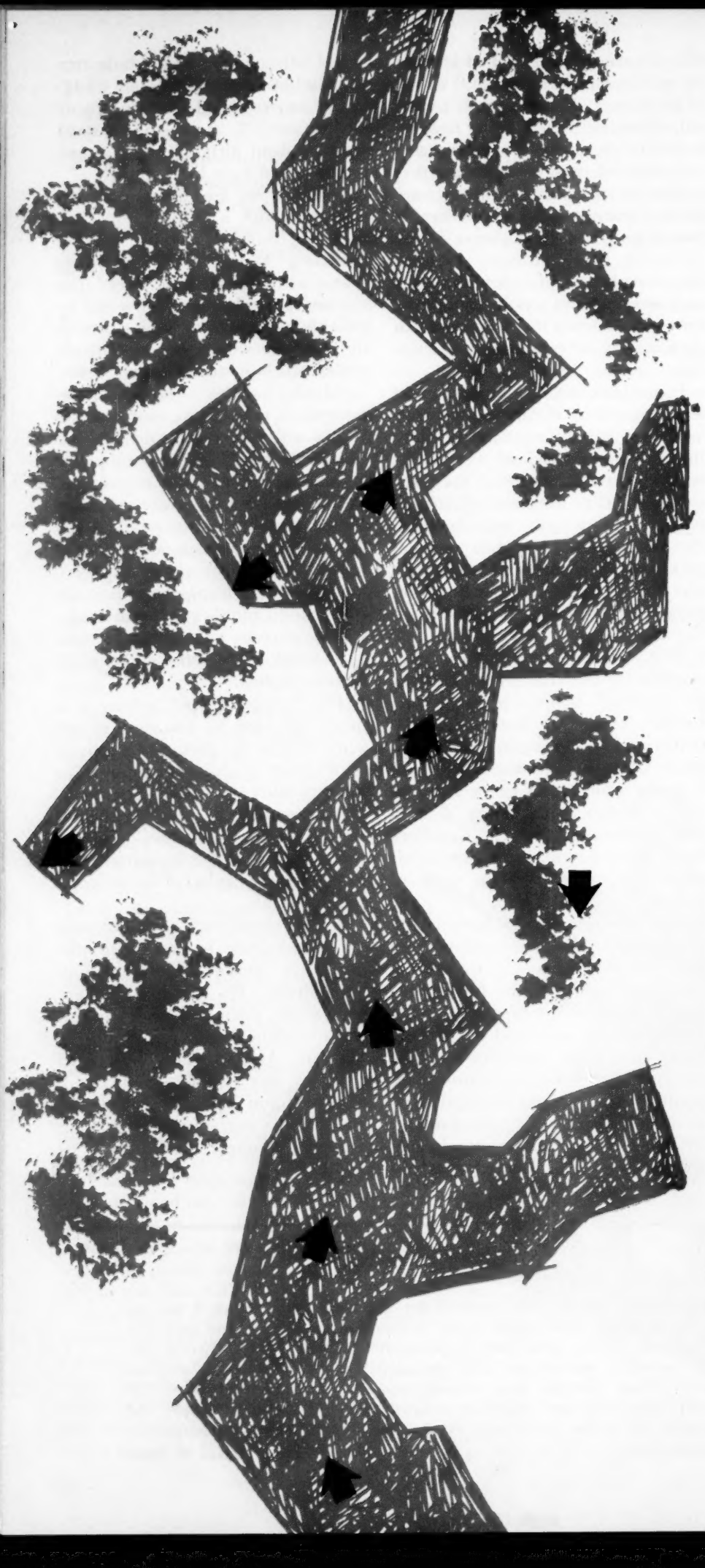
A man armed with a rifle, bayonet and ammunition is a complete military unit, capable of both defense and offense. He and his kind are, so to speak, the maids of all work on every battlefield—the first in and the last out. And whatever pattern future war may assume, it will be—as always—upon the man armed with the soldier's weapon of the hand-gun that the *ultimate* decision will depend. USMC

★ ★ ★ ★

Luxury Tax

A FEW YEARS AGO I ENTERED the 3dBn, 6th Marines messhall for the noon meal. Since I was receiving commuted rations, I went over to the table where I was to pay for the dinner and gave the young Marine on duty the usual amount for the meal, only to be informed I had to pay a 10-cent surcharge. Puzzled, I decided to pay the extra amount and take the matter up with the mess sergeant rather than argue with the mess attendant. But the mess sergeant, equally puzzled, went back to the mess attendant who innocently explained he knew that most enlisted men did not have to pay the surcharge, but he had always thought that senior NCO's who rated a "sir" had to pay a "surcharge."

SgtMaj Stephen W. Smith



THE E

ONE OF THE PRINCIPAL FUNCtions of command is the making of decisions. Either directly or indirectly the commander or leader is continuously involved in the process of decision. Yet, for many this is often a most difficult task. For one reason or another there seems to be a somewhat natural tendency to shy away from making decisions. Even a decision involving a relatively inconsequential matter, if it has unpleasant connotations, is often brushed aside, glossed over, or pushed off onto someone else. Few people enjoy being wrong, being responsible for mistakes or failure, even if only occasionally. It does not take much experience to realize that one bad decision can offset and cause to be forgotten a string of good ones. As a consequence, we frequently see leadership positions become road blocks, causing organizations to fail, to wither away, simply because of an inability or unwillingness to decide. Col F. P. Henderson in his article on command titled *The Return Of The Man On Horseback* (GAZETTE: June '58) put it very succinctly when he wrote: "These essentials call for the return of the real military commander . . . they desperately need men who can make command decisions. . . ."

Not only do the decisions of the commander count but, when we come right down to it, it is the aggregate quality of all decisions made within an organization which is go-

DECISION
E ESSENCE OF COMMAND

By Col C. B. Drake

ing to be the absolute measure of success or failure. We cannot point to the commander alone, notwithstanding the obvious—that his is the ultimate responsibility. We must recognize and accept the fact that the making of decisions is an obligation from which none of us can escape, no matter what our job, so long as we are in a position wherein we receive information and are required to do something about it.

That the importance of the process of decision is recognized is manifested by the considerable effort that is devoted to schooling us in the art of systematically and logically arriving at a sound decision. We are taught how to prepare an estimate of the situation, how to sort out and evaluate information, how to identify in a situation the key factor or factors on which to take action. If our training has been effective, if we have a reasonable amount of common sense, and if we follow a few simple rules, we should be fairly successful in the logical process of decision. But what is often overlooked is the fact that the decisions arrived at through these more or less formalized procedures are relatively few in comparison to the scores of decisions that are made informally, on the spot, in the course of the daily routine—all made without benefit of the consciously detailed, logical process of development in which we have been so laboriously trained. Indeed, countless decisions are made based mainly on experience, good sense, intuition, perspicacity, etc.

Let us take a closer look, then, at this more routine, less glamorous business of the day to day process of decision, the process which accounts for those hundreds of decisions made by commanders at all levels, by the administrators, the managers, the leaders. Call them what you may, they all have a voice in shaping the course of events, in making the decisions which ultimately will spell success or failure for a command.

In general there are four ways in which we are concerned with the process of decision. First, and these are not necessarily arranged in any particular order of importance, there is the influence we have on our seniors in the shaping of their decisions—the information we supply or deny, the recommendations we submit or withhold, to say nothing of the quality of these recommendations or how thoroughly we processed the information. Second, there are the decisions we make in our own right by virtue of our position in the organization. Then, there is the influence we have on the decisions of our subordinates. This can best be analyzed by posing such questions as: Have we delegated sufficient authority? Has our training been adequate? Have we supplied sufficient guidance and information? Have our instructions been unmistakable? Finally, what about our contemporaries or those outside our sphere of responsibility? Are we helpful by making information available or are we disruptive by attempting to exert improper influence over a matter about which we have insufficient knowledge and even less responsibility?

To get down to specifics, consider the last case cited above. We are all familiar with the individual, be he commander or staff officer, who is prone to attempt to influence action or make decisions outside the scope or fixed limits of his position. No doubt we are all guilty of this fault at times, always done with the best of intentions, to be sure, and frequently with considerable experience to back us up. But there are two pitfalls inherent in this situation in which we are quite likely to stumble. First, most organizations are so set up that information normally flows only to those positions which are required to take action or exercise some cognizance on any particular question, and not necessarily to all positions. Even if we have been exposed to a part of the picture, it does not always follow that we will see the complete picture. Consequently, if we go about attempting to make or force decisions that rightfully are the province of another, we may well find that we are acting without benefit of all available information, thereby creating situations which offer excellent opportunities for the mak-

ing of poor, if not at times disastrous, decisions.

Another danger is that this tendency to poach on the other man's preserve soon will be recognized and we may shortly find ourselves the recipient of a staggering load of problems which others are reluctant to resolve. Not only is the threat of the first pitfall still with us, but we are more than likely to find ourselves so overburdened that we cannot properly discharge those responsibilities which are in fact our own and deserve our full attention.

A problem closely allied to the foregoing is the case of the person who decides those issues which should be delegated to subordinates. Some people feel that it is incumbent upon them to make their decisions in such detail that subordinates well down in the chain of command will be left in no doubt as to exactly what is to be done, where it is to be done, when and how. What is not recognized by these well-meaning individuals is that seldom can a person well up in the organizational hierarchy predict in sufficient detail the conditions which will prevail at the time his decision ultimately will be put into action, so as to enable him to make such finite decisions in the first place. The larger or more complex the organization, the greater the interval between the time the first decision is made at the top and the time when the ultimate action takes place at the bottom. Not only is there a time differential, but physical conditions and geographical locations may vary considerably during this period. Consequently, each individual involved in the chain must so phrase his element of the decision that a commensurate amount of latitude will be allowed those on subordinate levels for the proper interpretation of the decision in the light of the conditions *then* prevailing. It cannot be overemphasized that nothing will bring things to a complete halt faster than a decision made at the top in such minute detail that subordinates find themselves so shackled that they are denied the exercise of any initiative in the discharge of their own responsibilities. What we must remember when making decisions on which subordinates must act is that no action can take place except in the *present,* under the conditions *now* prevailing, and with means *now* available.

LtCol Henry Reichner in his article, *A Tocsin For Command,* (GAZETTE: April '58) sums up the foregoing well when he writes to the effect that the commander should not undertake all decisions, saying specifically, "If he does, we have the anarchy of indecision through subordinate commands down to the last private Marine."

It was previously noted that there are four general ways in which we are concerned with decisions. This can be refined further to say that there are three distinct areas in which we find cause to make a decision.

First is the case where orders or directives are received from higher authority. The decision required in this situation cannot be avoided but can and quite often should be delegated. Usually what is required is first to interpret the order in the light of the current situation, determine what is to be done if anything, and retransmit the directive in such form as to enable the recipients to take appropriate action within their spheres of responsibility, remembering again to avoid unnecessarily tying the hands of your subordinates.

Next, you can count on many cases being referred to you by your subordinates for decision—decisions which they should make but for some reason cannot. This situation may arise because of poor initial instructions, inadequate information, conflicting orders, changing conditions, questions of jurisdiction, or the incapacity or inability of the subordinate. The guideline to follow here is not to be too ready to resolve the issue. To be sure, some questions will be of such importance or urgency as to require an immediate decision on your part, but it is the wise senior who provides only that information or guidance necessary to give a clearer insight to the problem and then requires the junior to try again.

The third and by far most important area in which we find cause for decision is on those issues raised on one's own initiative. In general this amounts to seeing something that needs to be done or spotting a situation that needs correcting and doing something about it. This is a real test of one's capacity for leadership or command because, unfortunately, we are all too prone to procrastinate or overlook issues unless they are brought forcibly to our attention. Yet, what is more important than to raise and decide those issues which no one else is in a position to do?

There is another interesting and most important slant on this business of making decisions. As a rule we regard the process of decision as being positive in nature—that is, we generally look on it as the act of deciding to do something concrete, to take some form of positive action. But, there is an equally important type of decision, albeit not always recognizable, and that is the negative decision—the decision not to decide. This is not to be confused with an inability or refusal to face an issue. Rather, the negative decision is in fact a decision in itself.

Consider for example the question of refraining from making decisions that others should make. This actually is a negative decision. Surely, all of us have been confronted at one time or another with an issue that belonged to someone else and we have decided properly not to resolve the question, leaving it to the rightful owner. If nothing else, negative decisions of this order certainly will enhance the morale of our contemporaries as well as our subordinates.

Then there is the question of timeliness. While it is incumbent upon us to examine issues in our general sphere of responsibility, we certainly have the right, if not the obligation, to exercise the good judgment not to decide an issue which is not timely. In this way we avoid committing ourselves, or our commands, to a course of action which may be premature. The cracker barrel philosophy of *don't cross the bridge until you get to it* certainly is applicable here. And, in a slightly different sense, but equally applicable, is that old adage that has to do with letting sleeping dogs lie.

A close ally to the foregoing is the relevancy of the issue to the case in point. To not decide an issue that does not bear on the question at hand is just plain good sense. It keeps from cluttering the situation with a lot of irrelevant decisions that can only serve to confuse and stymie action. Dipping into the cracker barrel again, it is rather obvious that we gain nothing by fishing for red herrings.

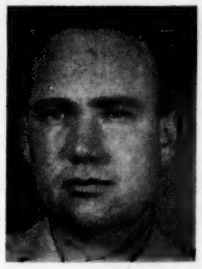
Finally, and certainly not the least in importance, is the negative decision of not making a decision which cannot be made effective, no matter how timely or relevant the issue may be. You may challenge this by saying that surely in every situation there can be found *a* proper decision that *can* be made effective. If you are convinced of this, consider the issue of racial segregation in the schools as it was presented to the Supreme Court and the decision rendered. This is not to take issue with the Supreme Court, but merely to cite this as a classic example wherein, during the course of the deliberations, the negative decision must have received the most thorough consideration.

Unfortunately, the fine art of making negative decisions frequently is confused with the fault of indecision. Take for example Walter Lippmann's article titled *The Tactic of Indecision,* NEW YORK HERALD TRIBUNE, EUROPEAN EDITION, 2 Sept '58, wherein he was critical of President Eisenhower's process of decision on the questions of racial integration in the schools and the defense of the islands off the coast of China. In both cases the charge was made that the President's tactics were to keep the people guessing, that the President refused to say what he believes. This, Mr. Lippmann says, "could be described as the use of mystification as a tactic—as a deliberate decision in critical issues to keep everybody guessing." However, Mr. Lippmann does not think so. Instead he purports to believe that the President's tactics are not deliberate and are not the result of a decision, but habit derived from his military experience. He quotes the President as saying in a press conference "You simply cannot make military decisions until after the event reaches you." Mr. Lippman goes on to say: "The notion of waiting for events to reach you before making a decision is not, we may venture to say, an inspired conception of military leadership." It is not intended to challenge Mr. Lippmann as a political pundit, but it is contended that, contrary to his opinion, Mr. Eisenhower has demonstrated a marked ability at the art of the negative decision. The fact that he has not seen cause to reveal his process of decision to the communists and the US press is not necessarily to his discredit. We are all familiar with the major positive decisions Gen Eisenhower made as a Supreme Allied Commander in WW-II, and it is not unreasonable to conjecture that his success in molding the cohesive Allied military machine that was so effective at Normandy and thereafter, considering the top international personalities involved, was due in no small measure to his skill in exercising the art of the negative decision.

There can be no question but that skill in making negative decisions may well be the factor which distinguishes the superior leader or commander. While negative decisions are most difficult to observe and evaluate, the quality of the positive decisions we make frequently is a direct result of our ability to make negative decisions. It goes without saying that the absence of mistakes is a good measure of one's skill at making negative decisions.

That we must make decisions, be they negative or positive, is manifest. That we may not enjoy making decisions is recognized but is not necessarily germane to the issue. That we may occasionally err in our decisions is inevitable. But to fail to exhaust every means to improve our skill in the art of decision is inexcusable—for, after all, decision is the essence of command.

USMC



Col Drake was commissioned in 1940 via ROTC after graduating from UCLA. Aboard the USS California at Pearl Harbor on 7 Dec '41, he later served as CO, 2/14, 4th MarDiv at Tinian, Saipan and Iwo Jima. His decorations include the Legion of Merit and Bronze Star Medal. He attended the UK Joint Services Staff College in England prior to assuming his present duties in Nov '58 with the G-1 Division, HQMC.

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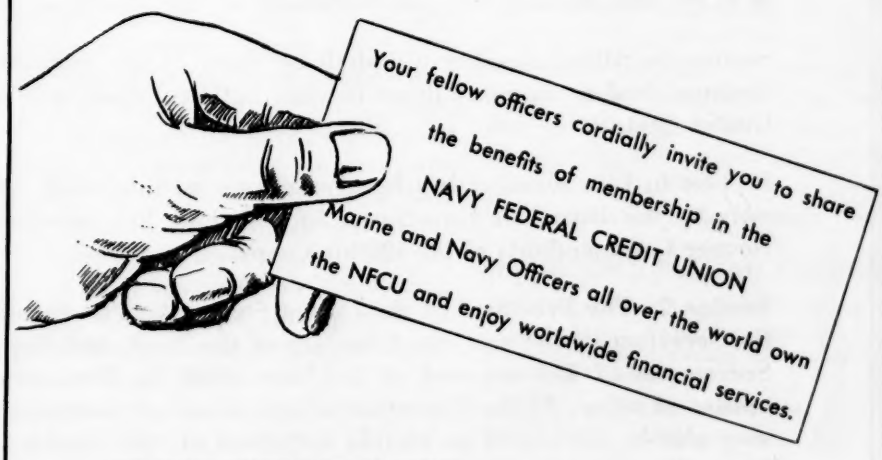
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THE MARINE CORPS ASSOCIATION

This change in the Constitution was approved at the Board of Governors' meeting held on 18 June, 1959.

ARTICLE II
Membership

Section 1: Membership in the Marine Corps Association shall consist of Governing Members, Regular Members, Associate Members, Allied Members, Life Members and Honorary Members.

Section 2: (a) Governing Members shall consist of the following officers of the United States Marine Corps:

COMMANDANT OF THE MARINE CORPS

COMMANDANT, MARINE CORPS SCHOOLS

ASSISTANT CHIEF OF STAFF, G-2, HEADQUARTERS MARINE CORPS

DIRECTOR, DIVISION OF AVIATION, HEADQUARTERS MARINE CORPS

DIRECTOR, MARINE CORPS LANDING FORCE DEVELOPMENT CENTER

DIRECTOR, DIVISION OF INFORMATION, HEADQUARTERS MARINE CORPS

(b) Governing Members shall have the same rights as Regular Members but, in addition, have the right to vote on all questions coming before the Board of Governors of the Association as hereinafter provided.

Section 3: Regular membership in the Association shall be open to officers and staff noncommissioned officers of the United States Marine Corps, of the Marine Corps Reserve and of those carried on the Marine Corps Retired List.

Section 4: Associate membership shall be open to all Marines not eligible for Regular membership; to all honorary discharged Marines; to members of the United States Navy, Army, Air Force and Coast Guard; to United States citizens in civil life, at home and abroad, who are interested in the objectives of the Association.

Section 5: Allied membership shall be open to the military and naval officers and distinguished civilians of those foreign nations which are considered Allies of the United States.

Section 6: Life membership is a gratuitous membership which may be conferred only by the Board of Governors. In addition, life membership is awarded to all former Commandants of the Marine Corps.

Section 7: The President of the United States, the Vice-President of the United States, the Secretary of Defense, the Secretary of the Navy, and Deputy, Under and Assistant Secretaries of Defense and of the Navy shall be Honorary Members during their tenure of office. At the discretion of the Board of Governors, Honorary Membership may also be conferred on certain members of the United States Senate and United States House of Representatives during their tenure of office.

Section 8: Disposition of Funds—No part of the Association's revenues or income shall accrue to the benefit of any member or governing member as such, and any and all excess of income over expenses shall be held in reserve for later use as needed in the furtherance of the objects of the Association.

PASSING IN REVIEW

THE BUSINESS OF WAR

MAJGEN SIR JOHN KENNEDY. 375 pages, maps, index. Wm. Morrow and Sons. $5.00

Staff colleges are forever delving into what the curriculum calls the "higher direction of war." This curiosity is admirable and the research required is illuminating. The evidence available to the serious researcher is almost overwhelming. Ever since the end of WWII, and in some cases well before the guns stopped bickering, there has been a regular spate of books, each giving the author's version of events as they appeared to him. The latest to join this imposing list is MajGen Sir John Kennedy's *The Business of War.*

In October 1938 Gen Kennedy, then a brigadier, went to the War Office as Deputy Director of Military Operations. There he was to remain except for a couple of brief interludes until he collapsed from overwork at the end of 1944. During one of these interludes he commanded the artillery of one of the divisions that was sent back to France after Dunkirk in an abortive attempt to carry on the war on the Continent. Needless to say that before very long this division together with the rest of the newly formed B.E.F. returned to England.

But *The Business of War* is concerned primarily with the plans for, and conduct of, the war as Gen Kennedy saw it from his position as Deputy Director—and later Director—of Military Operations. As such he was in a unique position to observe and deal directly with many of the leading Allied leaders. In this category are: Alexander, Auchinleck, Brooke (now Lord Alanbrooke), Dill, Eisenhower, Gort, Ironside, Marshall, Montgomery and Wavell —to name only a few of the more prominent military figures on the Anglo-American side of the house. His views on the prominent political figures of the era are interesting and his comments and evaluation of Churchill are quite unique.

To observe that no man is a hero to his valet will certainly not be regarded as the bright-new-thought-for-this-week. Even if it is an old chestnut it's a hard one to get around. That Churchill was a great man Kennedy never doubts. That Churchill was intensely human, was far from infallible, was exasperating on occasion, that he fathered as many unsound ideas as sound ones —these and a hundred other facets of Churchill are revealed in the author's candid, objective observations.

The campaign in Greece has been obscured in many ways, not the least of which are larger events and the

simple passage of time. But in Kennedy's methodical hands the picture of why things happened the way they did in Greece emerges fully. Here, as throughout the book, one has an excellent opportunity to watch the errors of judgment that wrote finis to many a brilliant career. Take Wavell's case, for example. The period from December 1940 to March 1941 had marked the period of Wavell's greatness as a commander in the field. The destruction of the Italian Army in the desert in December of 1940 and January of 1941 had been a brilliant feat of arms. Scarcely less remarkable had been the campaign in Abyssinia, which reached its culminating point with the occupation of Addis Ababa on 5 April simultaneous with the opening of the operations in Greece. But Greece can hardly be regarded as other than a military error. As the author says, it was the first of a series of major mistakes that finally led to Wavell's removal from his command. It was a campaign undertaken solely on political grounds and without a shred of military reason to give it substance. In fact there were many sound military reasons why it should not have been undertaken, and yet these reasons were never clearly and forcefully presented. Had they been, there is ample evidence that the venture would not have been directed. But this is in the realm of the "might-have-been" and is of value only as a lesson that was learned at great cost.

Gen Kennedy takes an objective view of the Anglo-American difference of opinion on the invasion of Western Europe and concludes that, on balance, the US position was the correct one. But he very properly questions the soundness of the military thinking that insisted upon the invasion of southern France long after the original reason for the operation had been completely negated. Whether the invasion actually required the draining off of troops from Italy to the extent that took place will always be an open question.

In *The Business of War* one gets a good look behind the scenes as the principal actors go through the scenes of the most fearful drama of our times. Sometimes they fumbled their lines or drew complete blanks and new faces took their place in the cast. It is an engrossing story. The pace is a bit uneven because of the sometimes frequent recourse to quotation from pertinent documents, though this aspect is of minor importance to the serious military student.

Reviewed by Col R. McC. Tompkins

NAPOLEON'S RUSSIAN CAMPAIGN

PHILIPPE-PAUL DE SÉGUR. Edited and translated by J. David Townsend. 306 pages. Houghton Mifflin Company, Boston, The Riverside Press, Cambridge. $5.00

This new translation and revision of an 1824 book has breathed new life into one of the all-time-great military campaigns. Comte de Ségur's account of Napoleon's disastrous invasion of Russia in 1812 has always been considered a most reliable work. This translation omits only technical military detail which would add nothing to the modern reader. Having studied other histories of this Russian campaign, it is fair to say that this book

is as readable and attention-holding as an Erle Stanley Gardner mystery. You will live the dramatic and moving experiences of the Great Captain and his lieutenants—Murat and Ney. You will be frustrated, cold and discouraged by the turn of events even though you know how the story ends.

The invasion of Russia by Napoleon began in July 1812. Smolensk was captured in mid-August. Moscow was entered about one month later. The retreat began 19 October, and of the army of more than 600,000 that started the campaign, 36,000 arrived back in Smolensk in November of 1812. In fact, Napoleon had only about 100,000 men when he reached Moscow. During the 25-day retreat to Smolensk he lost 64,000 troops . . . and he wasn't out of Russia yet!

In judging enemy intentions even the great captains make mistakes. For example, early in the campaign, on 28 August, Napoleon intuitively perceived and stubbornly persisted in assuming that the entire Russian Army was close at hand in spite of Murat's words to the contrary. When Napoleon finally saw the abandoned camp of Russian Field Marshal Barclay, Ségur writes as follows:

"Everything he saw there spoke of a mastery of the science of war; the favorable situation of the camp, the symmetrical layout of its parts, the exact and exclusive observance of the use for which each had been designed, and the resultant order and cleanliness. Moreover, nothing had been left behind, not a weapon or personal possession, no tracks—nothing to indicate the route the Russians had taken in their sudden nocturnal flight. There was more order in their retreat than in our victory! Defeated, they left us as they fled the sort of lessons by which the victorious never profit, either because success thinks it has nothing to learn, or because we put off improving ourselves 'til misfortune has struck."

The author, Philippe-Paul de Ségur, was born in 1780. His father had been Ambassador to Russia and his grandfather a marshal of France and Louis Sixteenth's Minister of War. The Revolution left Ségur without friends, and he wrote plays

for a living. In 1799 he was inspired by Bonaparte to become a soldier. By the time he was 30 he was a general and serving as one of Napoleon's aides-de-camp. By 1812 he was Napoleon's Quartermaster General and served as such during this campaign. In fact, he served close to Napoleon as an aide-de-camp or staff officer for 15 years, during which time he had ample opportunities to observe him in victory and defeat.

The editor and translator, J. David Townsend, is a clergyman in Cohasset, Mass., who has spent many years in France. His work is, in my opinion, a most worthwhile addition to the professional soldier's library.

Reviewed by BGen H. Nickerson, Jr.

SOLDIERS

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In this collection of 20 sketches of the Regular US Army divisions the author has condensed the histories of the various divisions in an effort to explain what has given to each of them its own special character. Factual listings of the locations, commanders, days of combat, campaigns, etc., of each division are leavened with the legends, exaggerations, and true-but-almost-unbelievable stories which are the foundations of tradition.

Particularly interesting to Marines is the story of the 2d Infantry Division, in which the 4th Marine Brigade served during WWI. The 2d's first commander was Marine BGen C. A. Doyen, and the end of the war saw future Commandant of the Marine Corps MajGen John A. Lejeune as the commanding general. The author pays glowing tribute to the Marines of the 4th Brigade for their actions at Belleau Wood, Soissons, and Blanc Mont.

Most of the chapters in this book appeared previously as articles in *Saga Magazine,* and the blood and thunder expected in such articles remains even after rewriting. It is no book for the ultrascholarly student of military history. But it does explain some of the elements which make the division the organization in which reposes the "soldier's pride." It is highly entertaining reading.

Reviewed by Capt D'Wayne Gray

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OBSERVATION POST

KEEPING THE "BOTTLENECK"

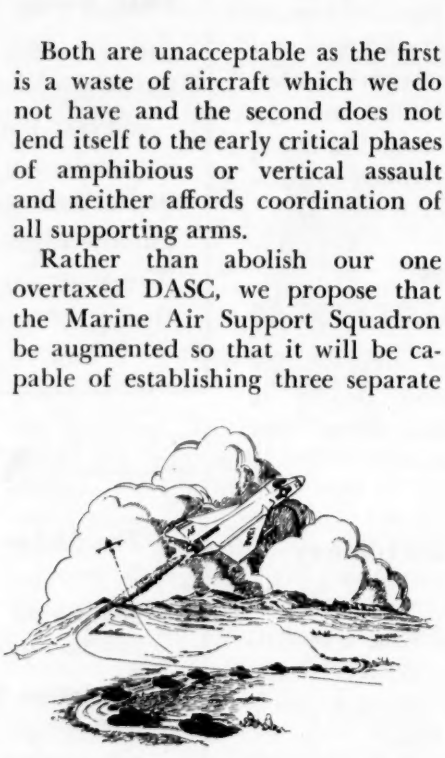
12th ProvMarBrig, Camp Lejeune, N. C.—Our present system for requesting and delivering close air support is basically sound, effective and proven; it should not be criticized without offering a method or system that improves the one now in existence. Capt MacMichael (*Bottleneck in Close Air Support,* Gazette: May '59) proposed an ineffective and radical change in light of the nuclear age and its concomitant separation concept. The captain maintains that the Direct Air Support Center is a bottleneck in the system and should be abandoned. No! The DASC cannot be abandoned unless we assume that artillery and naval gunfire no longer will be used in support of Marine infantry. As Marine pilots we know that we are experts at close air support; however, we also know that certain targets can be expeditiously and economically destroyed or neutralized by other supporting arms.

Without a DASC working in conjunction with FSCC, coordination with other supporting arms would be non-existent. In addition to CAS, the DASC coordinates other air missions such as observation, wire-laying, fixed wing and helicopter transport, aerial resupply and tactical helicopter requests. This alleged "bottleneck" allocates aircraft with the requisite capabilities to the unit with the greatest need for those capabilities and it ensures that the mission does not conflict with other supporting arms.

The captain would have us either maintain aircraft on station at all times under direct control of each battalion, or maintain aircraft on strip alert awaiting the call of a Tactical Air Coordinator (Airborne) in an OE or helicopter.

Both are unacceptable as the first is a waste of aircraft which we do not have and the second does not lend itself to the early critical phases of amphibious or vertical assault and neither affords coordination of all supporting arms.

Rather than abolish our one overtaxed DASC, we propose that the Marine Air Support Squadron be augmented so that it will be capable of establishing three separate



DASC's and Air Support Radar Teams. This will enable deployment of a DASC and ASRT with each infantry regiment for the control of air support within the regimental or brigade zone of action depending upon the tactical situation. Tactical Air Control Center or Tactical Air Direction Center would still retain overall control of aircraft and the Counter Air Operations Centers would continue to control air defense into the objective area.

We would further propose a solution to the communications problem as stated by Capt MacMichael.

Heretofore, each FAC has attempted to communicate via the TAR net directly with DASC when requesting air support. The net effect has been an unintelligible garble or "read backs," "say agains" and long test counts caused by too many stations on the net, distance, and equipment limitations.

The AN/GRC-9 is fine in a static situation but we could use a lighter, easily set up radio. A recent brigade landing exercise produced gratifying results by using the PRC-10/RC-292 back to the Air Liaison Officer at battalion FSCC. The "10" with whip antenna allowed FAC's to request air while moving and the "292" gave a boost in range when necessary. At a sacrifice of two minutes per request (for battalion approval and relay to DASC by the ALO) the FAC gained constant radio contact with the ALO and resultant positive contact with DASC, plus a lighter load.

This more flexible system brings the DASC within radio range of the TACP, maintains the necessary coordination with other supporting arms and still gives us effective utilization of our thirsty birds. New jet attack aircraft have less time on station and ordnance aboard than the old AD but, impassioned pleas notwithstanding, the Able Dog is joining the rest of the "Old Breed" and we must learn to live with her faster and more effective replacements.

It is the opinion of the writers that using the TACP local net (FAC to ALO) and placing the DASC at Regimental or Brigade level would furnish reliable communications even while operating under threat of nuclear war, and ensure control over a potent portion of the Marine Air-Ground Team.

Capt W. R. Limbach
Capt R. W. Kron
1stLt K. E. Soesbe

RECON VS THE NO FIRE LINE

Carlsbad, Calif. — At present there is no cut and dried method of coordinating supporting arms fires forward of the no fire line with reconnaissance elements of the reconnaissance battalion. In fact there is no general doctrine along these lines. Some doctrine or SOP should be established at this time so that it can be evaluated during peacetime training exercises instead of during combat when the cost of errors in coordination may cause unnecessary loss of trained reconnaissance per-

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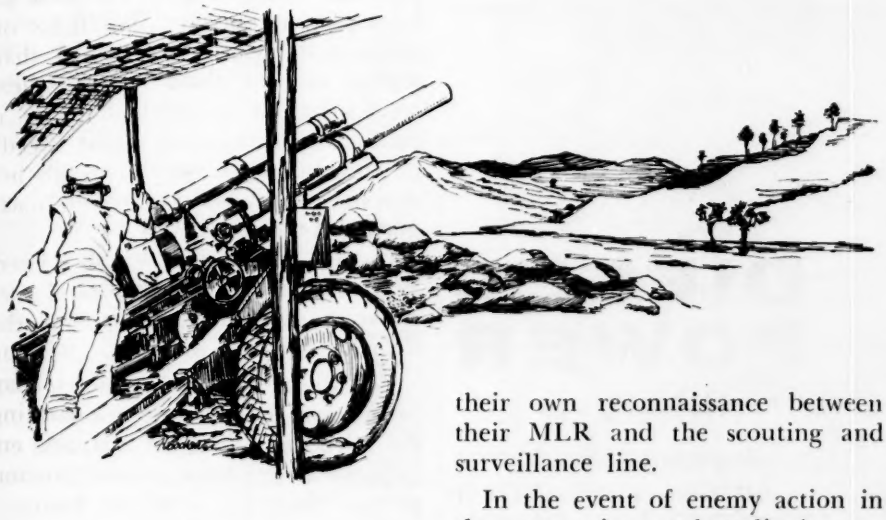
sonnel. There are probably several solutions to this problem and mine may not be the best, but I think that it is a workable solution.

First, perhaps I should expand on the term *no fire line.* It is a line beyond which supporting arms fires need not be coordinated with other units of the land force. At present, reconnaissance units of the reconnaissance battalion work forward of this line. We have the different no fire lines such as battalion, regiment, division, and force. Each of these is within the no fire line of the senior unit. Now the main no fire lines with which we are concerned are the regimental and divisional no fire lines. At present, effective coordination of fires with reconnaissance elements forward of these no fire lines is virtually non-existent. If we extend the no fire line forward



of the reconnaissance patrols and observation posts of the reconnaissance battalion, it will cut out all supporting fires with the exception of some deep support artillery and naval gunfire, unless they are coordinated. The time lag in coordination between support units and reconnaissance units is too great with our present communications setup and our lack of adequate supporting arms liaison personnel.

My proposal is this: We take the present no fire lines and extend them to the outer limits of the reconnaissance battalion's zone of action. We then establish a scouting and surveillance line approximately 10,000 meters forward of the infantry's MLR. An artillery liaison officer and his team would be attached to each reconnaissance company. He should have high-frequency type radio gear such as the AN/GRC-9A. His communications should net with both naval gunfire and artillery units.

The zone established forward of the scouting and surveillance line to the no fire line would be the reconnaissance battalion's zone of action and no fires could be called into this zone unless called in by the reconnaissance battalion. The infantry units could call in fires to the rear of the scouting and surveillance line without initiating liaison with the reconnaissance battalion. The reconnaissance units would assume the responsibility for coordination of their personnel passing through this zone behind the scouting and surveillance line with the infantry unit concerned. The infantry unit would be responsible for conducting their own reconnaissance between their MLR and the scouting and surveillance line.

In the event of enemy action in the reconnaissance battalion's zone of action, the reconnaissance patrol or observation post would call in fire on these enemy units through their company's artillery liaison officer. If the enemy was launching an attack and passed through the scouting and surveillance line, the infantry units could then call in supporting arms fires. They would have received advance warning of the enemy attack by monitoring the division reconnaissance and command communications nets.

This concept would require the training of reconnaissance personnel in the calling in of targets to the artillery liaison officer at the company with sufficient speed to enable artillery to be adjusted on the target. This could be aided a great deal in a defensive situation by adequate pre-planned barrages and concentrations which would be "on-call" missions.

I have dealt almost entirely with artillery here, but the same zones of responsibility could be used with close air support. An air officer in the company command post would form a company supporting arms center. It must be remembered that a reconnaissance company would have a greater zone of action than an infantry battalion. It could be determined which type weapon would be most suitable for the target in question by the Recon Co's supporting arms center.

1stLt G. G. Hoen

AO, VINTAGE 1959

2D MARDIV, CAMP LEJEUNE, N. C. —As the present Chief Air Observer, 2d MarDiv, I find it necessary to point out certain discrepancies in Capt Spiro's article, *TAO Plus You* (GAZETTE, May '59).

I was filled with hope that this article would embrace a much needed area of misunderstanding but alas, I became mired in the discrepancies (primarily organizatonal) contained therein. The captain is obviously referring to those days in Korea when Air Observers found their "place in the sun." However, the new look in organization which has probably not reached the author, has changed the internal functioning of AO Sections.

While the overall thesis is well taken and the objective to point out the capabilities and use benefits is sorely needed, I feel that we must take apart the aforementioned discrepancies in order to place aerial observation, 1959 style, in proper perspective.

First, the title, *TAO Section,* is a misnomer, and for clarity it should probably be called the Division Air Observation (DAO) Section. I say probably because the section is in reality a subsection of the Division G-2 Section under the provisional "M" Series T/O. I know it was called TAO but in using this expression, we confuse TAO (aerial observation conducted in high performance aircraft in the advance phases of an amphibious operation) with DAO (aerial observation conducted by the VMO Squadron in support of the division). The communicators still have TAO and DAO radio nets and they are not interchangeable.

Second, control of DAO under combat conditions will be vested in a number of officers and is coordinated by the Senior Air Observer. The Division Air Officer in his planning responsibilities controls the aircraft involved. The ACofS, G-2, and the Division Artillery Officer, in their requests for missions and recommended employment, in effect, exercise a direct control of the observers concerned. Hence, it can be seen that control no longer is strictly in the ALO channels.

The important point is how the "You" of the captain's article obtain aerial observation support. With the introduction of the G-2 influence the requests for AO support have fallen into intelligence "channels" and such requests emanating from subordinate units of the division are relayed to the G-2 operations center. These are specific requests for specific support missions. At this point we should take a look at general employment of AOs.

There are two general types of employment: the surveillance and target acquisition type and the specific mission type. The first of these is the pre-planned battlefield surveillance and target acquisition flights which are on a scheduled basis depending upon the particular situation. These missions are in support of the entire division and will normally consist of a set number of G-2 AOs and Artillery AOs airborne with predetermined (but ever varying) flight plans. These observers operate in the assigned DAO and Artillery Air Spot frequencies. The other general type of mission, the specific mission, is assigned on the basis of a need, in the form of a mission request, by a Division Staff Section or subordinate unit. These requests are received primarily through "2" channels at the present time. In some instances requests are relayed by ALOs or even called in directly to the Division Air Officer. This only creates a need to relay the request to the Senior Air Observer. Regardless of the manner, shape or form, the necessary coordination with the VMO is effected at the air strip.

Third, I wish I had the captain's confidence in the ease with which any unit (as he says, *You*) can contact an Air Observer by radio. I have not come to argue the problems of the PRC-10, but a mistaken impression has been presented as to the manner in which airborne observers are controlled. The scheduled AOs on the DAO nets and Artillery Air Spot nets may, in an emergency, be contacted on these nets. It should be borne in mind that these nets have a specific purpose and the observers on them have a pre-planned mission. When a unit requires the services of an Air Observer, one of these airborne observers may be vectored to the tactical locality or another observer may be launched on a specific mission to support this unit. In either case, the normal procedure will be for the AO to "report in" to the unit. Whenever possible, a frequency other than DAO or AAS will be utilized.

Fourth, as a logical sequel to the contention that anyone can call on the airborne observer directly, an impression has been created by the author that the observer can be called upon to perform any and all tasks upon request. The captain has either disregarded or didn't consider the command and coordination problems concerned. A case in point is his use of the AO as a Tactical Air Controller Airborne. This is a definite capability but requires more than just calling the observer. Without belaboring the point, the standard criteria for direct and general support of units prevail.

Lastly, I would like to assure the captain that the aerial observation capability is being utilized extensively and that, while methods and techniques are being constantly refined, they are based upon the contribution of TAO's, such as the author, and VMO-6 during the Korean days when organized and effective aerial observation was spawned.

Maj J. A. Schimmenti

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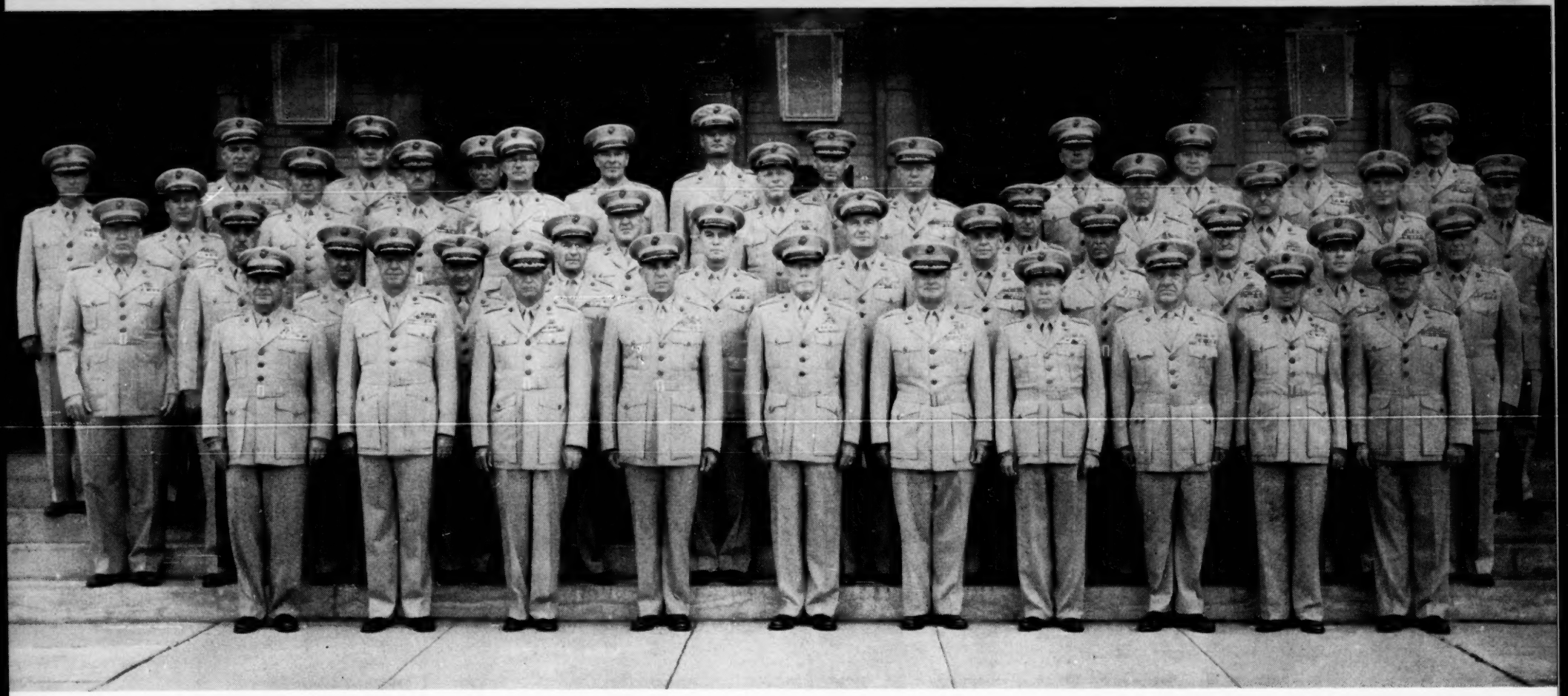

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